THE BUILDER

VOL. CI.—No. 3583. OCTOBER 6, 1911.

CONTENTS.

	PAGE
The Purpose of the Architectural Competition	379
The Future of the Architectural Association	380
Notes	381
The Story of the Bridge. VIII.—Architects and Bridges (with Illustrations)	382
The Architectural Association	385
Architectural Societies	386
Books (with Illustrations)	388
General News	389
Competition News	390
Conservatory Lounge at the Balham Constitutional Club (with Illustrations)	390
Intercommunication Column	390
Editorial Summary	391
Meetings	391
Notes to Illustrations	391
Fifty Years Ago	392
Monthly Review of Construction :—	
Timber in Roof Coverings (with Illustrations)	393
Colouring of Wood to Increase its Industrial Value	395
Reinforced Concrete Flooring Built without Moulds (with Illustrations)	395
Wrought-Iron Gates, Uffington Church, Lincs. (with Illustration)	396
Notes (with Illustrations)	396
The Building Trade :—	
The Appointment of an Arbitrator	398
Extraordinary Traffic	398
Master Painters' Convention	398
General Building News	399
Projected New Buildings in the Provinces	399
Architects and Gardens	401
A.A. Silver Medal (with Illustrations)	401
London Councils	402
Obituary	403
Foreign and Colonial	403
Patents	403
Some Recent Sales	404
List of Competitions, Contracts, etc., Open	405
Prices Current	406
Tenders	407

Illustrations.

Viscount Ridley's Staircase, 10, Carlton House-terrace. Messrs. Detmar J. Blow, F.R.I.B.A., & F. Billerey, Architects.

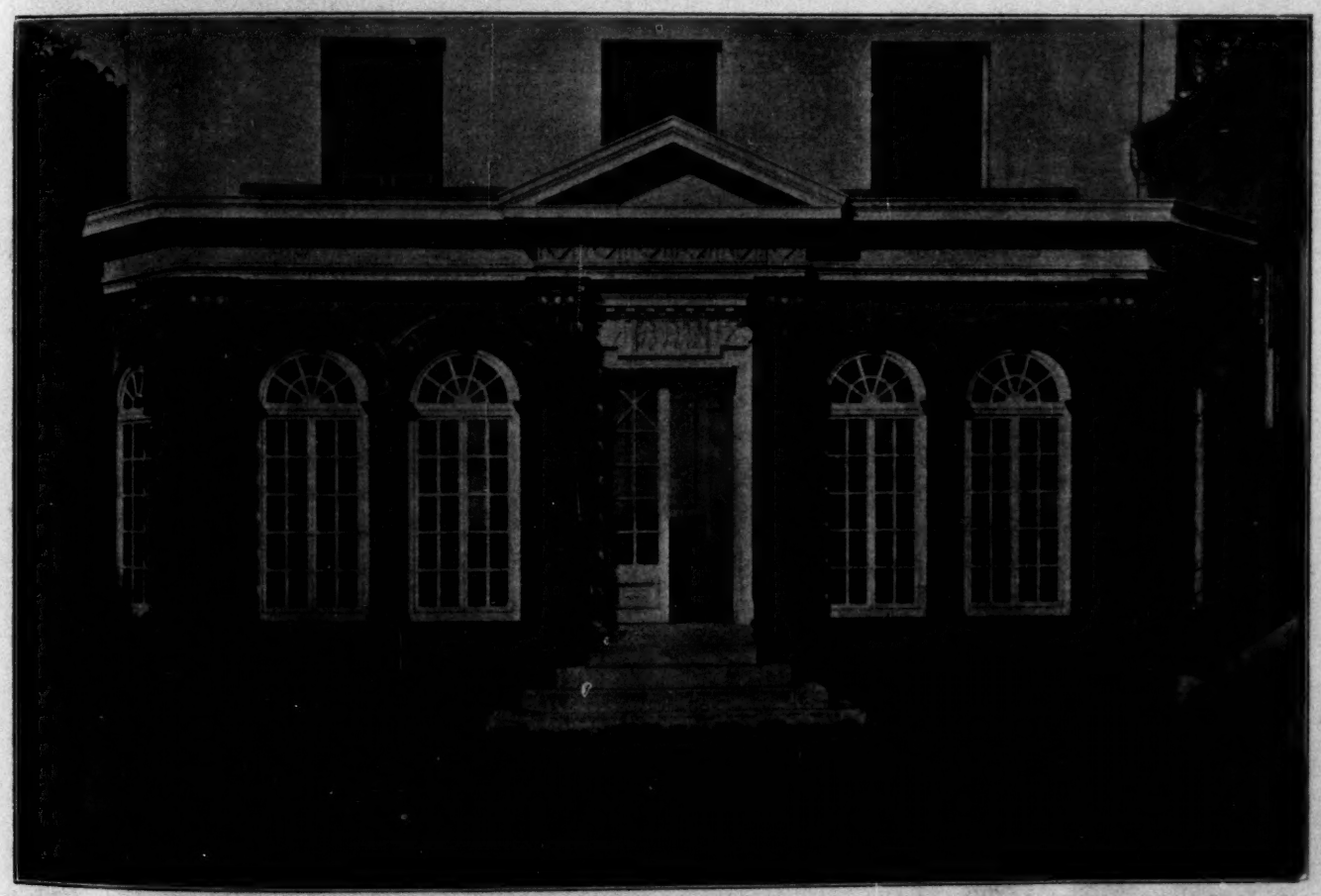
"The Story of the Bridge"—VIII :—

Pont St. Bénézet, Avignon.

The Alcantara and Alcazar Bridge, Toledo.

Additions to the Burlington Arcade. Professor Beresford Pite, F.R.I.B.A., Architect.

Nos. 55 & 56, Threadneedle-street, E.C. Mr. H. Chatfeild Clarke, F.R.I.B.A., Architect.



Addition to Balham Constitutional Club. (*See page* 390.)
Messrs. William & Edward Hunt, Architects.

THE PURPOSE OF THE ARCHITECTURAL COMPETITION.

LIKE all questions of method and policy, a system can only secure or maintain its place in the general scheme of human affairs if it shows itself to be in accord with what is usually assumed to be covered by the catchword, "the greatest good of the greatest number." Exception may be taken to this phrase as a mistaken mode of expressing the thing most desirable, indeed it is but a clumsy generalisation, but it must be made to serve even though it is not quite a logical formula for relative values.

Before applying this principle to architectural competitions, we must briefly take stock of the various intentions of those who have in the past been in the habit of promoting competitions. Putting aside those vitiated in their intention by some dishonesty of purpose as unfortunate exceptions having no bearing on general principles, we can limit ourselves to those promoted with a single-minded intention of securing the best result for the object in view.

Now, the ideals of the average promoter are naturally limited according to his general standard of culture. Economy in design and subsequent convenience in use will probably take first place in these ideals, a critical appreciation of artistic values coming a long way behind. The assessor, in the promoter's mind, is the man who will be able to select the design best fulfilling the requirements he (the promoter) has stipulated for, and some assessors have felt so strongly this point of view as to openly explain that they considered it their duty to identify themselves in their attitude of mind with the intentions of their employers. The more usual position for the assessor,

however, is for him to regard himself as entitled to give artistic claims a somewhat higher value than would be instinctively allotted to them by the layman; but even then, as a judge, he will probably consider that he is only carrying out the terms of his appointment in selecting what is to his mind the best designs having sole regard to the true interests of the promoter. Taking these as the lines on which competitions are usually assessed, we may fairly say that promoters institute them for their own benefit, and that the system of professional assessing gives them more or less the kind of design they expect.

We are not, at the moment, concerning ourselves with the capacity of the assessor or the advantages of the jury *versus* the individual. These issues do not affect the question of the true purpose of the competitive system. It is a very prevalent opinion that this purpose is to secure the best value to the promoter, indeed the American Institute has gone so far as to give official expression to this view.

It is this view we feel to be open to doubt. The R.I.B.A. displays a greater breadth of outlook in pronouncing that competitions are to be regarded as a means of promoting the interests of architecture, a definition sufficiently comprehensive, but which demands a certain amount of explanation. Does it mean, for instance, that by taking part in a competition a man improves his power of design? This may be true, but there are also other educational methods of as great or greater value. Does it mean that by giving opportunities to untried men it throws open the door to all the ability available? This, again, may be true, but the devil's advocate once more retorts that competitions as practised degrade the finer shades of genius. The axiom that competitions are in the best interests of architecture could only be accepted without reservation were they dealt with on the broadest architectural basis, and we propose to show that this is by no means the case at the present time.

To start with, the interests of promoters, even where they demand the best, are not necessarily the interests of the public; to take an example, it may be desirable to give up a portion of the site to improve the surroundings or the effect of the building at the cost of perhaps a little more compression in the plan of the buildings themselves than might otherwise have been desirable. We could quote several instances in which this line has been adopted by competitors, but not one in which it has led them to success. Again, sometimes the best course from the civic aspect might dictate a broadly-spreading treatment in lieu of a more compact and economical one, while other instances might be quoted to show that the more limited interests of the promoter cannot be identical with those based on public amenity.

Leaving this side of the question, we will take up another aspect. It may be claimed that the interests of architecture are best promoted by the exploitation of the most imaginative artist, but in the modern competition how would Dance's design for Newgate fare against one showing a 15 per cent. economy in cost and better facilities in its scheme of control? As things are at present, awards are almost invariably made on too narrow a basis. Assessors are afraid to give the palm to a design possessing obvious defects, even when these are remediable, though it may appeal to their architectural instinct as artistically more inspiring than any other submitted. If the R.I.B.A. contention that competitions are promoted in the interests of architecture is to be maintained, this attitude is untenable, but, as a rule, the decision follows the national instinct for compromise, and the feeling of the assessor is that he will select what appeals to him as the best architecture, only if it does not prove too expensive.

Another aspect of the case demands consideration, namely, the influence of competitions on the education of the architect. The standard of architectural ability cannot be regarded as a matter of indifference to the general public, and we can fairly claim that the chief merits of the competitive system are that, if properly conducted, a competition urges men to exercise their faculties to the utmost, and at the same time throws open the door to the whole profession to offer of their best to the world at large. Looking first at the educational value of the system, we may unhesitatingly declare that this is the most important function of the competition, more than counterbalancing the loss of time and money to the profession so frequently set out as a serious, if not a conclusive, argument against the practice.

Now, this educational value is beneficial in a greater or less degree according as the awards are made in the interests of architecture or in those of architecture "adulterated," as it were, with those of an inferior quality, such as economics and other concomitants of the business of building. If the best competitive designs fall short of the best to be found elsewhere, it must be accepted that the full force of the educative influence is not being exercised; if they do not so fall short, we can claim that it is.

The advantage of the competition in educating the architect is hardly of more value than its possibilities in the way of educating the general public. That these are by no means exploited to the extent that they might be is by no means the fault of the system, and, with the increasing interest that is being taken in architecture in general, there will inevitably be an increase of interest on the part of the public in competitive designs. We can hardly conceive a more illuminative experience for the layman than a study of the conduct and result of an important competition with the aid of a well-studied expert criticism of the whys and wherefores of the decision.

To sum up, we may claim that the purpose of the architectural competition is twofold, and that the less important aim is that of securing for the promoter the building which most nearly fulfils his demands. This, by itself, would not be sufficient to justify this method. The more important object, and the one that does justify it, is the interest of the nation and its architecture as a whole, which is effected in well-conducted competitions, by the manner in which they can educate the architect, educate the public, bring the lay employer into touch with the best ability, and offer opportunities for the broad treatment of building problems owing to the acceptance of a design being supported by influential professional advice. Of course these claims can scarcely be made for a large proportion of competitions as conducted at present, but the recognition of human fallibility does not preclude our arriving at a decision on the abstract merits of a system and the achievements it may make possible.

THE FUTURE OF THE ARCHITECTURAL ASSOCIATION.

THE interesting Presidential Address delivered by Mr. Gerald Horsley at the Architectural Association shows a full appreciation of modern tendencies and the need for a broad outlook and a wider culture in dealing with the architectural problems of the future.

That the Association is alive to the necessity of reform, to keep in touch with the advance in education that has been so noticeable lately, is shown by the appointment of Professor Pite as Director of Education, with a view to a more complete reorganisation of method.

As the President states, "The development of this scheme might necessitate at some future time such a co-ordination of the means of study as might lead to the formation of a great National School of Fine Art and the crafts of building in this country, of which our schools would form a recognised part."

This seems to strike the right note and to be the true ideal towards which the policy of the Association should be directed. Indeed, it may be said that, if the Association does not wish to outlive its sphere of usefulness, it is the only possible ideal.

There may be some who regret the change of the old order—but what avails it to regret the inevitable? The Association was started under very different conditions to those which obtain to-day. No systematic training was then possible, no day schools existed. To pitchfork a boy fresh from school into a busy office, with permission to pick up any scraps of stray information he happened to find lying about, was considered the height of wisdom, and the best method to produce worthy successors to William of Wykeham or Inigo Jones. Few students had the President's good fortune to be placed in the care of a distinguished artist.

Under such conditions it was natural that the organisation of the Architectural Association should take the form more of a mutual aid society than of a school. This was all that was possible at the time, but in these days it is no longer even possible. That the Association has recognised this and determined to part with old traditions in this respect is a proof of its vitality and a promise of its future usefulness. As the President realises, "The most important work of the Association is the School of Architecture, the successor of the old voluntary system of education for which the Association was primarily founded."

In referring to the proposed advance school, Mr. Horsley rightly points out

that it does not presuppose any slavish imitations of the French school, though we may learn much from it. The great need of architecture here and now—the principal work of the schools of the future—seems to be the systematic study and the right understanding of the principles and theory of architecture, and the gradual building up of a technique, a definite and generally recognised method whereby a building may be made to express the ideas suitable for expression in architecture. The French school is universally recognised to be the one which has the highest standard in this respect. We want no slavish copying of the forms and features in which their theory and technique find expression. We need to get behind the forms and understand the method—the point of view. If we must copy, let us copy them in this, and build up a method of expression suitable to our national requirements and different racial characteristics.

In these days of technical institutes in which the various crafts that go to make up a building are everywhere so thoroughly taught there is a danger that the student may learn every craft but that of architecture. And, considering the facilities in this respect to be obtained elsewhere, it is just a question whether the Association should not concentrate its energies in creating a school of design, of architectural expression only, leaving the student to obtain his mathematics or his sanitation at institutions specially adapted for that purpose.

NOTES.

"Cheap" Churches. THE little pamphlet on "Cheap" Churches, issued by the Incorporated Church Building Society, takes the form of the now fashionable "symposium" in that the views of several eminent architects are extracted from their speeches and writings on the subject. Wholesome warnings are given as to the difference between true and false economy, putting the matter even on the lowest basis of the practical requirements. Mr. W. D. Caröe affirms that cheapness in building involves with unerring certainty dearness of upkeep. Further on in his remarks Mr. Caröe makes a special note of the undesirable type of church in which, as he says, "Precisely the same set of plans and details and the same specification are used again and again, no matter what or where the site or the locality." We welcome Mr. Caröe's conversion from the dark days when his name was connected with lithographed plans and specifications of parsonages offered as models for use throughout the country. We do not know if these plans have yet been withdrawn, but, if not, the fault cannot be laid at Mr. Caröe's door after he has expressed himself so clearly. Mr. Charles Spooner recalls the impression created by Bentley's great church at Westminster as an illustration of the fact that an absolutely plain church without moulding or carving may be a very noble building, while Sir C. A. Nicholson differentiates neatly in his remark that "There is no harm whatever in building a cheap church provided it be solid and sufficiently spacious. The harm comes in when people try to build showily as well as cheaply, when they starve the roof-tree so that they may gild the altar."

The Architect's Garden. IN another column (p. 401) we quote an article from a contemporary that strikes us as exhibiting an exceptionally clear appreciation of the relationship between architect and client, generally as to the house, and particularly in regard to the garden. The article closes with a hint that the garden is hardly likely to remain just as the architect leaves it. Now every architect who is himself a gardener knows how inevitably the garden will in time suggest modification and improvement beyond what may have been foreseen from the start, and he will sympathise with a client's desire for opportunities to initiate in this respect. To begin with, the architect should know enough of garden work to be able to fulfil his client's demands in the same way and to the same degree as he would in the arrangement of the house, by this means giving what is wanted in so far as it is not incompatible with the harmony of the whole. Afterwards we should hope that the friendly relationship between the two has sufficiently cemented itself for the client to invite the architect's co-operation, just in a little sociable chat, when a development of the garden scheme is in contemplation. The proposals are not likely to suffer from skilled professional criticism; in all probability the architect may be able to offer valuable suggestions, while at any rate he would have the opportunity of drawing attention to any features out of keeping with the existing work.

The Survey of London. THE chronological survey of the City of London and its antiquities, in which the Joint Congress of the British Archæological Association and the London and Middlesex Archæological Society has been engaged, came to an end last week, when some monuments of later periods, Stuart and Georgian, were visited. Mr. Charles E. Keyser, President of the British Archæological Association, speaking at the Mansion House, expressed the wish that everything they had seen could be preserved. Referring to the case of Crosby Hall, he said it was a disgrace that it had been removed. Of course. As far as the City of London is concerned, and indeed as far as all those who take more than an architectural interest in the matter, Crosby Hall might as well have been destroyed outright. It possesses no significance and hardly any beauty where it stands. The Lord Mayor, than whom few tried harder to keep the house where it grew and stood, in reply, said that, as regards Crosby Hall, the fact that the ground would fetch two millions an acre had proved too much for them. And is likely to do so. As the speaker said, all sorts of propositions had been made with regard to the City churches. And so on. Now, as a community either we value these things or we do not. If not, there is nothing more to be said. If we do, however, let us value them at their true worth—that is to say, as objects absolutely valuable—"*absolute*" because unique and irreplaceable. And let us remember that their value lives only so long as they stand on the spot on which they grew. With this attitude of mind an old City becomes an area on which there stand strangely-shaped hillocks and cliffs of adamant. All additions and alterations must be in relation to these irremovable features. For the planner and improver of streets and public spaces these old buildings are as natural features of which advantage must be taken, which it is a confession of incompetence to remove. One sees them not as obstacles, but as jewels awaiting their setting. But, of course, if we care more for the number of pounds per acre . . .

The L.C.B. and Civic Aspiration. THE steadiness with which occasions arise for adverse criticism of our central government authorities in architectural matters must be as apparent to our readers as it is distressing to ourselves. The case of Oldham Town Hall appears on the face of it to betray an attitude of petty parsimoniousness on behalf of those under its supervision by the Local Government Board which is surely a labour of supererogation, if we are to look upon it as the policy of the Board with regard to municipalities generally as they are constituted to-day. We say "on the face of it," because it is easy to imagine the existence of a variety of circumstances which it might not be thought politic to disclose that would justify the Local Government Board in the instance under consideration; but if this is the case the Board cannot but stand condemned for considering secrecy desirable in affairs of this kind. Oldham possesses a Town Hall of which apparently her citizens are ashamed—but we let that pass as not being relevant to our contention—a Town Hall which is at any rate inadequate in point of accommodation. It is proposed to remedy this by building an addition at a cost of about 30,000*l*. The Board has criticised the scheme, suggests that it is not as cheap as it might be, and indicates amendments which would reduce the cost by a few hundred pounds; shear the addition, that is to say, of the architectural amenities which would render it a source of pride to the town and reduce it to a condition of starkness which would be consistent with a mistaken conception of "utility." As the *Oldham Standard* has it: "Now, however, when it is proposed to do something on a substantial scale to supply the want, the Local Government Board, influenced by goodness knows what, must interfere to checkmate us. We must apparently attempt nothing elaborate or attractive, and our public buildings must remain an eyesore." And again: "None of them (the Town Council) thought that Mr. John Burns, of all men, would charge them with extravagance when they attempted to remodel the Town Hall along lines that would, at least, make it creditable to the town from an architectural standpoint." This, surely, is an outcry in the right spirit, apart altogether from the architectural merits of the scheme.

The Empire Palace Fire.

THE British Fire Prevention Committee's report on the Empire Palace fire at Edinburgh, which has been drawn up by Mr. Ellis Marsland and Mr. Max Clarke, gives a clear and instructive description of this catastrophe. Apart from the unfortunate loss of ten lives, the course taken by the fire shows that progress has been made in the construction of theatres as regards the separation of stage and auditorium, and had the arrangements of the dressing-rooms and their approaches been equally good several more lives would have been saved. As our readers may recollect, the audience all escaped uninjured, despite the error of judgment which allowed the drop curtain to be lowered before the fireproof one, the consequence being that the former was drawn out by the draught towards the auditorium, preventing the latter from coming right down. Even then the damage in front was trifling, and while this mistake may have contributed to the ultimate failure of the fireproof curtain, this stood for eighteen minutes—a more than sufficient time for the exit of the audience. We confess that we should be better satisfied if the curtain had not failed, considering that it is clearly practicable to design one strong enough to resist. In this case it hardly seems to have been sufficiently stiff in its construction and drew out of the guides, which were formed by a pair of Z bars screwed through a back plate. There appears no reason why the curtain should not run in grooves formed in brick or concrete, so that, if in itself sufficiently stiff, it could not fall away from its position even if the metalwork in the guides succumbed to the heat.

The Disaster at Austin, Pennsylvania.

THE collapse of the dam at Austin, which has caused so deplorable a loss of life, has called to mind the apparently somewhat similar disaster to the Connemaugh Valley dam at Johnstown, Pennsylvania, in 1889. As a matter of fact, the similarity is more apparent than real. The Johnstown dam was formed of clay puddle, and its failure was due to many years of neglect, while the Austin dam was a new one constructed of concrete. In this case the information at our disposal leaves it open to doubt whether the failure was due to faulty work or to the unfortunate habit too prevalent in the U.S.A. of designing with an insufficient factor of safety—of cutting things too fine, to use a colloquialism. The length of the dam, 530 ft., appears to show that it must have been what is termed a "gravity dam," and the fact that it began to leak soon after its completion some eighteen months back points rather to faults of workmanship than of design. The full history of the failure will doubtless be studied with interest by the engineer whose work lies in this direction. In these days of reinforced concrete the design of the actual dam wall presents trifling difficulties compared with those involved in making a sound connexion between the wall and the ground on which it is founded.

Railway Nationalisation.

THE annual meeting of the Amalgamated Society of Railway Servants has come at a somewhat unfortunate time, as the matters with which it is concerned are *sub judice*, but it has enabled the public to compare the statements made on the platform by the President as to the condition of railway servants and their grievances with the evidence offered before the Royal Commission by persons on both sides giving evidence with a due feeling of responsibility. The leaders are in a position of difficulty as regards the Irish strike, which has, at any rate, exhibited the inability of the Society which claims recognition to control its members in times of difficulty. The recent strikes and the intervention of the civil and military forces appear likely to be used in certain quarters as an argument for nationalisation of the railways, but the intolerance expressed of any Government interference in trade disputes, coupled with the experience of some countries where the railways are State-owned, would seem to indicate that the remedy for the present trade union unrest does not lie in that direction.

Oriel College, Oxford.

NOT the least interesting chapter in the history of Oxford is that relating to the advent of the late Cecil Rhodes. Although Rhodes went to Oxford with an unusually matured mind, there can be no doubt that the traditions and spirit of the city had a strong influence on his future. He himself admitted the fact, and by his interest in the University he showed that he was prepared to repay the debt of gratitude. A few days ago, when the new buildings of Oriel College, designed by Mr. Basil Champneys, were opened, Dr. Shadwell, the Provost, gave an interesting address on the history of the College, and reminded his audience that it was barely forty years since that Cecil Rhodes had applied for admission to Oriel. In the interval much has happened in South Africa towards the achievement of the ideals of the pioneer who, "ever looking North," conceived vast schemes for promoting civilisation. But while he was engaged so strenuously on the veldt he never forgot the seat of learning on the banks of the Isis, and through his benefactions, apart from other well-known endowments, Oriel College possesses now a building which is a monument to the generous donor's efforts towards the spread of education. The moral of the gift is one of significance to the Empire.

THE STORY OF THE BRIDGE.

BY WALTER SHAW SPARROW.

VIII.—ARCHITECTS AND BRIDGES.

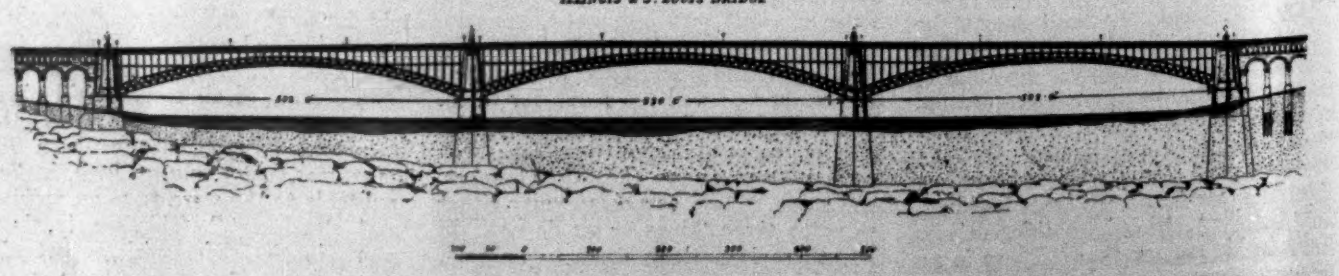
ARCHITECTS have managed to drift apart from a good many things essential to their high office as the most useful of all public servants. For example, the people ought to be encouraged to consult good architects in all matters of domestic furnishing and decoration. Yet architects have no consulting hours for that purpose, and they have got into the habit of believing that their main work is to build homes, though shop syndicates degrade new houses with clever estimates recommending seasonal fashions. Again, towns and railways ought to get opinions from the Royal Institute of British Architects before they invest money, plus the good looks of several neighbourhoods, in the construction of new bridges; but what layman would support that view? How many persons now regard bridge-building as within the province of architecture?

Civilians lift their eyebrows with astonishment if you suggest that truth to them; and even some architects have declared that they have looked vainly for fine art even in old historic bridges. This attitude differs greatly from the deep affection for bridges that painters and etchers have been glad to express. Piranesi etched bridges nobly; Turner's poetry wandered along them to and fro between the past and the present; and every landscapist of note has put something good from their romance into his pictures. Whatever architects may feel about scientific engineering—a thing hateful to me as a rule—they surely cannot be blind to the variety of apt excellence that gives grace and charm to many an old bridge which for hundreds of years has served the passing generations.

If engineers, like the architects of battleships, had been obliged by public opinion to keep their designs in step with the progress of gunnery and explosives, they would certainly have evolved many bridges having a much greater value than the industrial types which they have invented. How to safeguard piers without obstructing rivers too much; how to give the superstructure all possible refuge from falling shells; what the maximum span of an arch should be in its relations both to temporary and swift repair and to the stress and strain of war; these problems, and many others, if engineers had been obliged to concentrate thought on their solution, could not have failed to inspire great efforts and to bring into vogue new constructive methods and powerful designs.

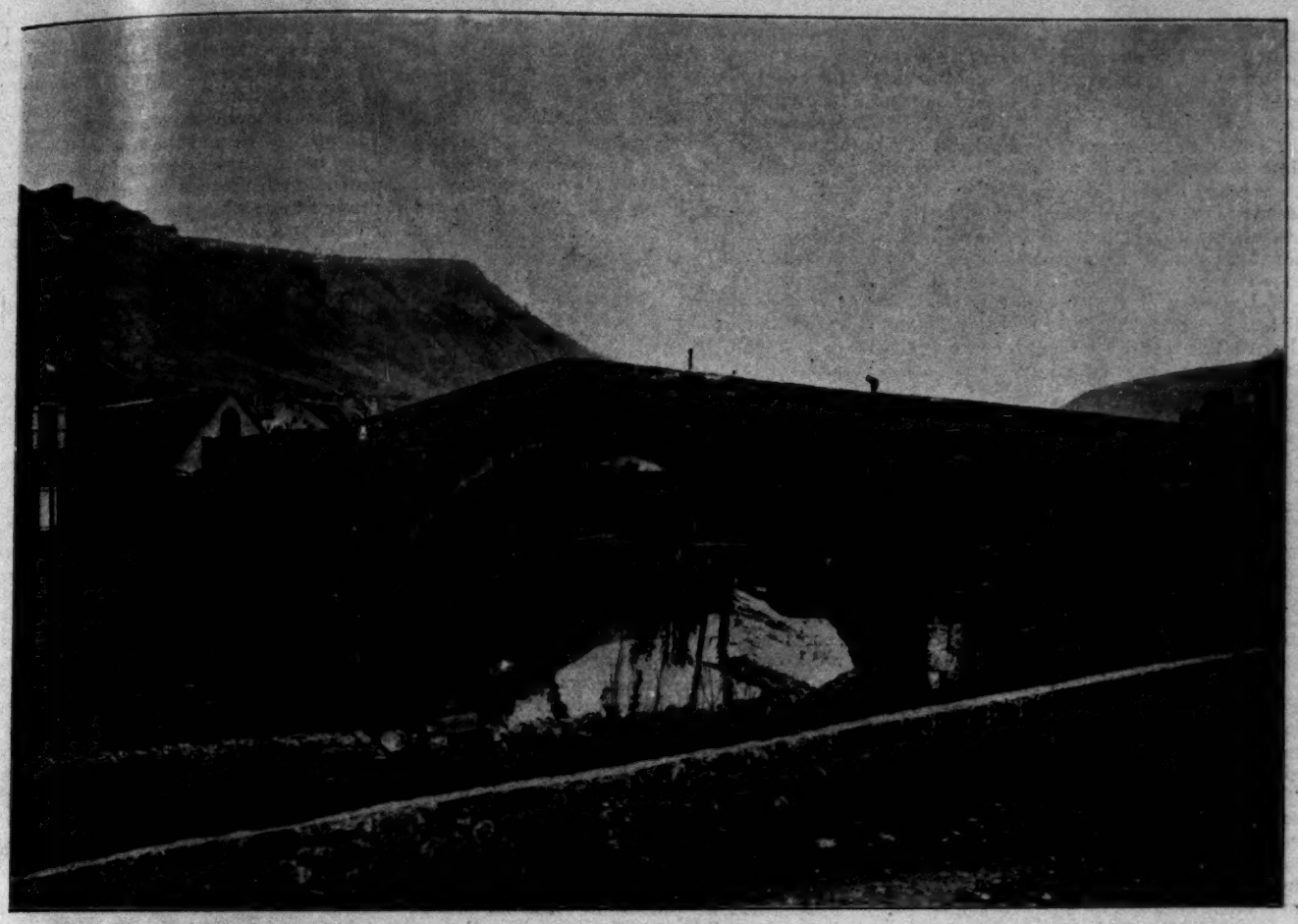
Conformity to definite and urgent needs, making each useful thing as fit for its purpose as it well can be, is always an agent in the

ILLINOIS & ST. LOUIS BRIDGE



Over the Mississippi.

(For the best description see Sir Charles A. Hartley, quoted by Professor Fleming Jenkin in his "Monograph on Bridges.")



Bridge of Notre-Dame at Mende, Lozère, over the Lot.

art of building. Utility does not produce ugliness when all the special requirements of every case receive from experts as much attention as they deserve. A fleet of metal battleships is not ugly, for instance; it is extraordinarily impressive. Every thorough architect recognises utility as the basis of his work, and on that sure foundation he makes beautiful buildings. His art is tradition and common sense in perfect harmony with the needs of to-day and enriched with imagination. Something very different appeals to us when we study the work of scientific engineers. Here, as a general rule, immediate convenience for purposes of trade has dominated all other considerations, with the result that those bridges which are not monsters of ugliness like the Britannia Bridge are very often too big for their surroundings; and can you name even one which is not defenceless and very vulnerable? We know, too, that Parliament with apathetic stupidity, granted powers to railway companies that enabled them to deface thoroughfares, to destroy the beauty of neighbouring architecture, and to disfigure landscapes with much bridge-building that will long remain as a national humiliation.

Leading architects have protested often and earnestly. I may take E. M. Barry as an example. In his lectures from the architural chair of the Royal Academy—they were delivered between 1874 and 1879—he spoke his mind on this question of bridges, regarding it as a compromise affected by many influences: cost of production, the utilitarian spirit, the defects of taste and of design that seem to be inseparable from engineering, the value of beauty to a nation, and so forth. He said, among other things: "The greatest works of the present generation, those of scientific engineering, are not architecture, but mere building. In them the actual necessities of construction have alone been recognised, with the results that may be seen, for example, on the Surrey side of London Bridge, where one of the finest old churches we possess is hemmed in by iron structures of surprising ugliness. If architecture were felt to be a matter of public interest, any such disfigurement of our public places would not be permitted; and while the argument of utility must always have great weight, it would be carefully scanned, and not be permitted, as a matter of course, to override all other considerations. . . . Take an instance of bridge-building. The Menai Straits are spanned by two bridges. The problem was the same in each case, viz., to carry a roadway across the Straits at a great height, and with the least possible interference with the navigation. The one bridge—Telford's—was necessary for the turnpike road; the other had the more difficult task of supporting the great weight of a railway. . . . Here we have the adoption of the trabeated principle of large iron beams laid upon supports of masonry, which rise from the valley beneath, and tower up above the beams to a height far exceeding that which is necessary for their support. I well remember the animated discussions in scientific circles as to the form and design of these beams, which were ultimately decided upon as rectangular tubes. In the many discussions of the merits and defects of circular, elliptical, or square sections, I do not recollect that a word was said of architectural effect. Had anyone ventured to suggest that this, too, was an important matter, and that an unsightly structure would be an eyesore for all time, he would have been promptly told that the forms to be employed were an affair of science alone, and that utility pure and simple would dictate their arrangement. In the result a lovely valley was defaced by one of the most unsightly structures of this mechanical age."

And that was not all. Even the distribution of metal in the section of the tubes was soon questioned, and a very different design was chosen for the next great work in the science of hideous bridge building. I refer to the High-Level Bridge at Newcastle,* with its two roadways, the one for carriages passing under the railway so that business folk may be reminded by the noise overhead that they are natives of a very pushful industrial town. There are six arches, all of the same width, namely, 125 ft., for a practical mind, long used to ledgers and routine, likes a dull uniformity. Much ado was made about this bridge, and Queen Victoria opened it in 1849. The "Encyclopædia Britannica" described it at great length, giving more space to its planning than the frugal Romans would have granted to half-a-dozen great viaducts. People were proud that the new monster had cost 243,000*l.*; that 4,728 tons of cast-iron had been used for the arched ribs, and that the ties of wrought-iron weighed 321 tons. Engineers boasted that the bridge was a perfect example of the true bowstring arch in which no cross-bracing was necessary. And then, all at once science refused to brag any more; she became thoughtful and very critical. This was shown in the next edition of the "Encyclopædia Britannica," which now gave no more than eighteen lines to the High-Level Bridge at Newcastle. All the old praise vanished, and readers were told that the bowstring type could not be recommended for imitation, being essentially more expensive and heavier than a true girder.

Even when we turn to those metal bridges that show in their design some grasp of æsthetic principles, we find that art and science have not been combined together after a thorough study of all considerations involved in the purpose of a bridge. As an example we will take the Illinois and St. Louis Bridge, a fine work of its kind, dating from 1873. It crosses the Mississippi, which at St. Louis flows in a single channel 1,600 ft. wide and 8 ft. deep at extreme low water. There are three metal arches, the middle one having a span of 520 ft., while the others are 18 ft. narrower. If it was worth while for the sake of public convenience to erect this great roadway above a wide and dangerous river, it was also worth while for the sake of public convenience that the width of the arches should be determined by the probable dangers to which the bridge would be exposed in a time of war. Would it be possible temporarily to mend a metal arch having a span of 520 ft.? If not, why build a huge and costly structure with steel-ribbed arches of that size, which might be destroyed at

C

* Illustrated in Article VII., p. 32.

the very moment when a double railway track across the river, and a roadway above for other traffic, might unite an attacking army to its supports and determine the issue of a critical battle?

These questions were not considered at all. Many authorities will tell you how the St. Louis and Illinois Bridge was built; how the arches were erected gradually from each pier and abutment without the aid of centering; how four double ribs of steel in each span were formed with tubes jointed butt to butt, and braced well together at their relative distances from each other; how they were clasped together by wrought-iron couplings furnished with parallel grooves corresponding with similar grooves in the tubes; how steel pins, varying from 4¼ in. to 7 in. in diameter, passed through the centre of the couplings and the ends of the tubes at every joint; and how the vertical bracing between the upper and the lower tubular ribs, which were 12 ft. apart from centre to centre, made the two members into a single arch. This and other information was given to Sir C. A. Hartley by the engineer, Captain James B. Eads, whose design showed a want of military forethought quite in accord with the routine of scientific bridge-building.

For Captain Eads was no different from European engineers. Custom is reason either half awake or fast asleep, and custom in the modern science of engineering has never given any thought to the simple questions: "Is this bridge as fit as it ought to be as a safe roadway? Could it be destroyed by a strike of workmen armed with explosives, and could a breach in any arch be repaired quickly for the passage of troops and provisions during a time of national crisis?"

Instead of getting answers to these questions, by which the precise worth of a modern bridge is made evident, we have been assailed by details of technique and by the cost price of materials. We were expected to gape with admiration because Captain Eads gave 60*l.* per ton of 2,000 lb. for 2,500 tons of steel, and 40*l.* per ton of 2,000 lb. for 500 tons of wrought-iron. A target of much gold for modern artillery!

Well, now, are we to suppose that architects would ever be as blind as engineers have been to the utilitarian factors governing the use and worth of bridges? Would they have forgotten such great things as the perils of war and the dangers of strikes? Or would they have lost their care and liking for beauty in nature and in design? After reading about the fate of bridges during Napoleon's campaigns, could they have been so unwise as to build in metal many hundreds of vulnerable structures which to-day's artillery would ruin with even greater ease than the gunpowder of 1799 destroyed the great timber bridges of the brothers Grubenmann?

One cannot answer these questions affirmatively. Capable architects have the genius of artists, and artists, whenever they give their minds to practical matters, have a range of common sense that men of affairs never equal. Artists look at questions from all sides and see them amply and as a whole. It is the man of affairs who isolates two or three things from many, and believes that those two or three things are all that need attention. "It is unnecessary for these bridges to be handsome," said the railway companies; "we need them for business." This decision was repeated many times. Years later, when railwaymen break out into civil war, the public suddenly is told that scores of bridges useful in business are in need of troops to guard them from the striking classes. Engineers built those bridges, for their practicalness was limited by routine and trade; it was mere business without imagination and art.

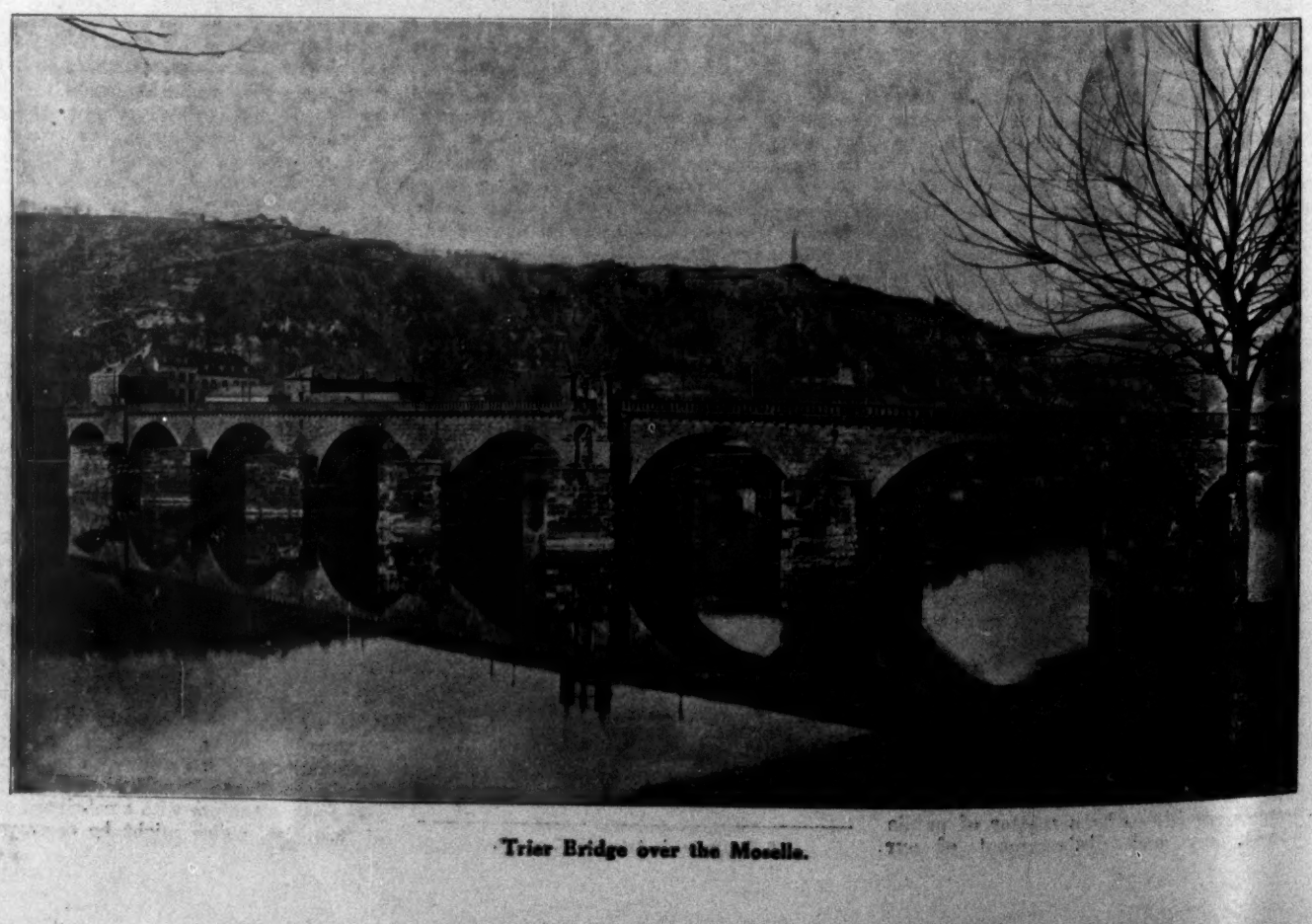
But the main trouble is that architects cannot easily regain what they have allowed to slip away from the control of their criticism. In this question of bridges engineers hold the field, as governing bodies find in their work that degree of practicalness which is patent to business minds. Apart from this, it will take a long time to convince the public that bridges belong to the most perilous necessities of the national life. This was realised to some extent during the railway strike, but we cannot point out too often that a country dependent on imported food, and subject to periodical conflicts between labour and capital, must have bridges in all respects fit for their purpose as secure highways. A country with cut bridges would be like a man with severed arteries.

What we need at the present time is a Committee of architects and engineers having for its duty the examination of all new projects in those forms of civil engineering that affect national interests. It should be a Committee of judges, not a Committee of working barristers. That is to say, the members should devote all their time to impartial work and the testing of evidence; they must have no axes to grind and no professional theories to advocate. At the present time, when the majority of architects condemn a bridge newly projected, there is always a minority that takes sides with the engineers and the men of trade.

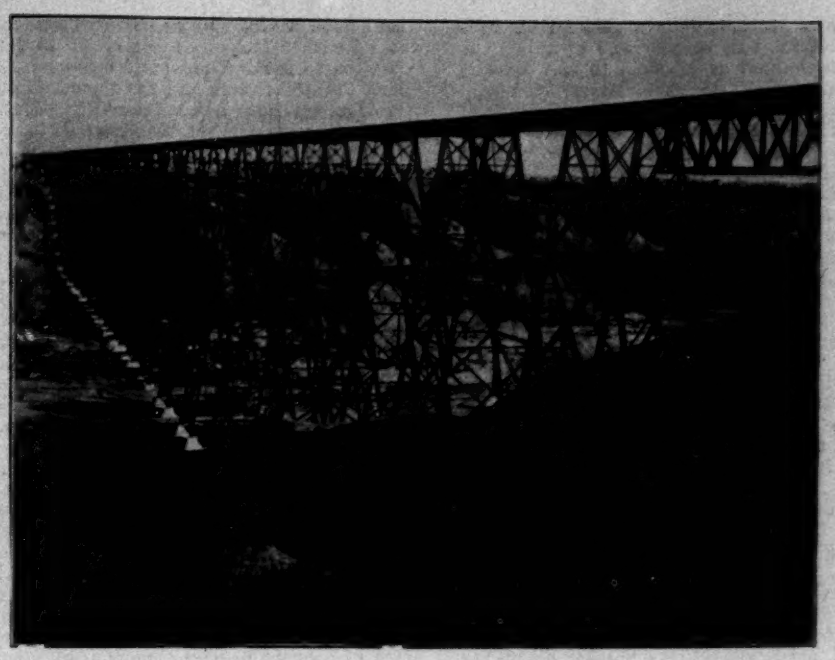
From these current affairs and the muddle that England loves one turns with pleasure to a few of the old bridges, because they show in various ways the presence of genuine architecture. The XIIIth-century bridge over the Lot at Mende, in Lozère, is humble and rustic, built by a master mason probably; but note the feeling for stone in the simple and effective masonry. Here is a little bridge that found its way into art because it was built by craftsmen who loved their work. It is in harmony with the country-side; it belongs to its site and neighbourhood. Pull it down and tourists would feel the loss of an old friend.

As to the famous bridge of Avignon, built by Saint Bénézet and the Bridge Friars between 1178 and 1188, its history has been told many times. Only four arches now remain, but they are of great interest to students. Professor Jenkin noticed their elliptical outline with the radius of curvature smaller at the crown than at the haunch, "a form which accords more truly with the linear equilibrated arch than the modern flat ellipse with the largest radius at the crown." There is no other bridge of the XIIth century having arches of this kind.

It is said that Bénézet performed miracles, healing the sick; but his eighteen arches at Avignon ought to have been enough to satisfy his ambition. He died before his work was finished, in 1184, and his body was entombed in the Chapel of St. Nicholas built on the third pier. The tomb became a shrine that pilgrims visited; and the chapel has never been injured by feuds and by floods. War destroyed some of the spans in 1385; three others fell in 1602; and in 1670 several piers were overthrown during a thaw and flood that came after a very severe winter. The Rhone was frozen over, and when the ice began to melt and break



Trier Bridge over the Moselle.



C.P.R. Bridge, Lethbridge, Alberta, Canada.

The following students have been recommended by the External Examiner, Mr. Paul Waterhouse, for the Board of Architectural Education Certificate, which entitles them to exemption from the R.I.B.A. Intermediate Examination :—

A. S. G. Butler.
F. A. Crouch.
G. A. Fortescue.
B. P. Gaymer.
J. O. B. Hitch.
L. D. Martyn.
C. W. Rogers.

The following students have been awarded the Association Two Years' Course Certificate :—

H. D. Archer.
A. A. Bennett
D. E. Cruickshank.
G. G. Detmold.
T. W. Dowsett.
G. Fildes.
D. J. Gordon
W. Harkess.
E. J. T. Lutyens.
A. B. Peermahomed.

Presidential Address.

The President then delivered his Presidential address, as follows :—"Before I begin what I may call the more serious part of my address I would like first of all, as your President for this session, to have a word with you about our Association. The Architectural Association has already travelled far upon the road towards fulfilment of the ideal of its founders. I like to think that that ideal was to inspire in its members a true love of art rather than a mere desire to be successful business men. This was the aim of a band of young architects, the founders of our Association, sixty-four years ago. As the first President of our Society, the late Professor Robert Kerr, said a few years ago, when speaking of its origin and the conditions of architectural training at that time, "The time had come for a stirring of dry bones. It was not the seniors, but the juniors themselves, who made the demand—that there should be supplied to the inquisitiveness of youth something more up-to-date than all this" (referring to the architectural training of that time). "'Why not take the matter in hand for themselves?' said young Charles Gray and others. 'Why not, indeed?' said Donaldson and Godwin. So they did it; and the upshot of it has been that, not only in London alone, but in other centres of English energy, it has become a first principle in our professional training that the young men shall put their own shoulders to the wheel as an organised body. And well, thoroughly well, has it answered." So will it ever be—enthusiasm is with the young. Here are a few figures in proof of the steady growth of the Association. The present number of members is 1,611, exclusive of those nominated to-night. This time last year it was 1,589. Thirty-five years ago it was 668, showing a growth since that time of about 1,000. The number of students also in the classes from the foundation in 1847 up to some ten years ago, when the schools were placed upon their present basis, was a varying number in proportion to the number of members at the time. Since 1901, when the present schools were formed, the number of students who have passed through them is about 1,500. These numbers surely speak well of the work done in furthering the aim and ideal of our Society. The "Brown Book" states the objects of the Association to be as follows :—"To promote and afford facilities for the study of architecture, and to serve as a medium of friendly communication between the members and others interested in the progress of architecture." It goes on to say that the objects shall, as far as practicable, be carried out by means of papers and discussions, a library, lectures and classes, a school of architecture, prizes and scholarships, visits to works and buildings, periodical publications, and by such other methods as the Council may determine from time to time. A goodly list. The communication between the members fostered by these methods has led to the formation of many valuable friendships, and will lead to a good many more, for the different societies within this Association which encourage informal but useful meetings among our members are all doing as well as we could wish. The Camera, Sketch, and Debate Club, for instance, has thoroughly justified its existence. Last session it held an excellent exhibition of very good sketches and first-rate photographs, and it has had some good debates. I believe to-day it has just returned from a week-end visit to Cambridge. I hope we shall soon see the result of their sketching and photography in another exhibition. I would commend to its members a consideration of the advantages of joining the A.A. Annual Excursion, in lieu of holding a separate outing of their own in the same month.

Social Activities.

Owing to the papers which are read, and the discussions which follow them, at our ordinary meetings, these are social gatherings as well as opportunities for hearing about something we probably knew nothing about before. We have gained greatly by the departure made last year in combining the alternate meetings with the Camera, Sketch, and Debate Club. We have had good meetings and animated discussions. I would like to remind you that the papers which are read at our meetings are usually of a most interesting description. They help to widen a man's general knowledge of art, and we hope to see our younger members coming forward and taking part in the discussions. The library and the periodical publications have made great progress in the last few years. A comparison between our present *Journal* and the old *A.A. Notes* must be very satisfactory to the editors of the former, and emphasises their admirable work. The "Association Sketch Book" has, I rejoice to say (as an old past member of its Committee and an old contributor I regard it with particular affection), a new lease of life. Undoubtedly the most useful and best book of its kind, it has at last been discovered by

D

up immense damage was done. The original length of the bridge was 600 metres.

As contrasts to St. Bénézet's work I illustrate the Moorish bridge at Toledo, a fine achievement as a whole, and the old Trier Bridge across the Moselle, that still retains its religious symbols midway in its length. For many generations a crucifix was placed above the parapet in the middle of a bridge, and sometimes, as at Trier, a statue of the Virgin was enniched below. The Trier Bridge should be studied side by side with the Moselle Bridge at Coblenz, illustrated in the issue of September 22, and which dates from the year 1344. The Mosello Bridge, with its fourteen arches, is 1,100 ft. long; the masonry is good freestone, and the design is architectural. When we compare these venerable types of bridge architecture with the spindle-shanked modernities to be found in Canada and the U.S.A., who does not feel the threatening difference between our age of speed and the slow evolution that ruled over progress when art and craft had stern traditions ?

THE annual general meeting of the Architectural Association was held on Monday night at Tufton-street, Westminster, Mr. Gerald C. Horsley (the President) in the chair.

Thirty-six nominations for membership were received.

It was announced by the Chairman that a vacancy had occurred on the Council due to the resignation of Mr. P. W. Lowell. At the next meeting the Council would suggest a candidate for election, but under By-law 37 any member could nominate a candidate.

The Prizes.

The President proceeded to present the prizes won in session 1910-11 by the following students :—

G. W. Home—A.A. Silver Medal (see p. 401).
C. F. Butt—Architectural Union Company's Prize.
W. J. Durnford—Banister Fletcher Bursar, 1909
T. F. H. White—Banister Fletcher Bursary; Drainage and Water Supply.
A. G. Shoosmith—Class of Design Prize.
H. J. H. Dicksee—History, First Year; Construction, First Year; Geometry, First Year; Physics, First Year; Studio Prize, First Year.
E. C. Davies—Freehand Drawing, First Year.
D. J. Gordon, Travelling Studentship, Second Year; End of Session Test, Second Year; Prize offered by H. P. G. Maule.
E. Kennedy Smith—Scholarship, Preparatory Courses.
J. B. M. Walch—Preparatory Course; Geometry; European Mediæval Architecture.
J. A. Hale—Master's Prize, Preparatory Course.
A. B. L. Roberts—Scholarship, Third Year.
G. W. Stuart—Book Prize, Third Year.
T. F. Ford—Master's Prize, Third Year.
H. V. C. Curtis—Travelling Studentship, Fourth Year.
F. A. Crouch—Master's Prize, Fourth Year; Fourth Year Book Prize.
C. W. Marles—Preparatory Physics.
C. J. McCausland—Preparatory Physics.
A. B. Peermahomed—Intermediate Physics.
G. Fildes—Renaissance Architecture; Greek and Roman.
P. H. Bagenal—English Architecture.
C. M. Cooper—Advanced Physics.
G. A. Fortescue—Ventilation, Lighting, and Heating; Professional Practice.
H. Gresswell—Materials.

many who previously have closed their eyes to its merits. In consequence of this it is becoming valued as it ought to be. I hope, as members of the Association, you will support it by lending your best drawings of old work for publication and by subscribing the small sum necessary to have the volumes supplied to you. We have had good competitions for the prizes and scholarships. I am glad to tell you of an alteration which has been made in the conditions of the Travelling Studentship. Formerly this was reserved for those members only who had passed through the School of Design; now it is open to the competition of any member who is under twenty-six years of age. Page 110 of the "Brown Book" will show you that this prize is now more than ever well worth your notice.

With much pleasure I wish to call your attention to the exceedingly good provision which has been made for the athletic side of the Association. Thanks to the untiring efforts of Mr. Alan Potter and other members of the Committee, a very good ground has been secured and prepared for football, cricket, and hockey. On a memorably fine and perfect afternoon last summer the ground was opened with much graciousness by Lady Webb, to the great satisfaction of all present. Now I need not say much more about the Athletic Club; it can take good care of itself. But I will say this: We ought all to support it. We all have to put in much intellectual work nowadays, and to keep fit intellectually we must keep fit bodily, and the Athletic Club will help us in a particularly delightful way. Do not overlook in your "Brown Book" the page which gives you information concerning the well-known 28th Battalion of the London Regiment, the "Artists." Fortunately, for the good of us all as citizens of this Empire, it is no longer necessary to tell the public school man on taking up his own citizenship that it is his duty, if he can pass the necessary tests, to join the Territorial Force. The splendid work done by the O.T.C. in the schools of England has spread that knowledge wide. I consider we ought in this Association to either supply a company to the "Artists" from the fine material we have here or to make notable additions every year to those companies already existing which are mainly recruited from architects. As one who did his few years in the regiment, many years ago now, I can testify to the good of the work and the pleasure of the comradeship. In view of the duty to our country in this respect, there ought to be an effort made to give facilities to those students who have to complete their drills.

The A.A. School.

The large subject of the School of Architecture I deal with more fully presently, but this I will say, that, after many years of voluntary and disinterested endeavour, the Association has a school which is second to none in this country. When I consider its well-thought-out scheme and many advantages I am forced to think of the more simple conditions which obtained when I and my contemporaries left school in order to study architecture, some thirty years ago. Perhaps you will not think me too prolix, or too much like the old man whom you know "will be talking," if I recall my own beginnings and compare them with your own. It was my good fortune in 1879 to be articled for three years to Mr. R. Norman Shaw. You can guess they were happy years. There was much to learn, much to inspire. But at that time there was no organised system of education beyond the term of pupilage, except the instruction given in the evening at the Royal Academy Schools, in some art schools, and the voluntary evening classes of this Association. We (I speak of myself and my contemporaries), or most of us, joined the Royal Academy Schools during the term of our pupilage on submitting drawings to prove our fitness for admittance, and worked there in the evenings. On looking back I think the chief value of that school work was the competitive work for the prizes. It was a good exercise, and lasted some time, for the Academy studentship alone lasted some six years. Travel abroad, working as an assistant, and competing for the Royal Institute prizes filled up our time till, some eight or nine years after the first days of pupilage, we began to practise.

And now, having spoken of those subjects which I wished first of all to mention to you, I pass on to speak more particularly of the School of Architecture and the objects of our education. When I was thinking of my address to you to-night it occurred to me that I could not do better than begin it by quoting the following words, written by our great King Alfred more than a thousand years ago. These words are:—"Thou knowest that no man may understand any craft, or wield any power, unless he have tools and materials. Every craft has its proper tools." It is true the King was writing about kingly power and describing the tools and materials necessary to make that power of a fit and noble kind. Still, the quotation, so clear and to the point, as was the way of the great ruler and law-giver, sufficiently describes the aim of this Association, which is to give its members power to do good work by the provision of a thorough system of education. At the risk of being a little tedious and repeating to-night what a good many here already know very well, I wish in this address, which I have the honour as your President for this year to make you this evening, to refer to the work of the Association and to the influences which now affect it, and to those further influences which might be brought to bear upon it. Although the risk I have mentioned be present, I am the more emboldened to speak on this theme because we have amongst us several new members, who are fresh to the conditions of life in our Association and unacquainted with some of the movements influencing the current of art life in this country.

Now, the most important work of the Association is the School of Architecture, the successor of the old voluntary system of education for which the Association was primarily founded. The present method of education consists, as you all know, of a four years' course, divided into two years in the Day School and two years in the Evening School, during which latter period the student is articled to an architect in practice. By this means the careful preliminary training in the first two years in this school leads up to the combined office and school training in the succeeding two years, a combination obviously of the utmost value to the student. This course of instruction is an admirable one so far as it goes; the details and effect of its working are always being most carefully watched by the head master and educational staff, and by the Council of the Association, who frequently meet to confer together. A new development has been inaugurated this year. Professor Beresford Pite, himself an old member and Past-President, well acquainted with the history and work of the Association, has joined the educational staff as Director of Education in the schools. As a master in the Evening School and as lecturer in both the Day and Evening Schools, he will instruct as well as direct. This is an accession of strength to our system which Mr. Maule and the assistant masters have heartily welcomed, and I think we are entitled to congratulate ourselves upon it, and to hope for a continued healthy growth of our means of education. In addition to the four years' course to which I have referred, I may here announce that it is intended to form at once an advanced class, or a fifth year's course, for those who are desirous—and I believe there are many such—of pushing their studies further.

Period of Study.

Hitherto the four years' course has been founded upon the syllabus put forth by the Board of Architectural Education, and a tradition of sound and careful work has been established in the schools, which is constantly growing and expanding to meet the needs of the day. I am aware that there are those who hold that a four years' course is sufficient for an architectural student before beginning to practise, and particularly for the man who has been to a university. Though I am strongly of opinion that four years is not enough for the greater number of students, I admit there is a good deal to be said for this period of study in the case of those who have spent three or four years at the University and who have done well there. Time is of consequence in their case, and the trained minds of students who have been through the University course will learn and absorb more quickly than the minds of those who enter the schools here direct from the public schools. For these last I assume, and I believe rightly, that the four years' course is too short a term of instruction, and I believe that the student who makes up his mind to spend the years between eighteen and twenty-eight in the close study of his art, earning his living, if necessary, meanwhile, as others have done before him, as an assistant to architects in practice before practising as an independent architect, is more likely to become an accomplished artist than he who begins to practise immediately on the conclusion of his articles. It seems to me that if it were possible to combine the general education of a University with the acquirements of the preliminaries of architectural knowledge for perhaps two years after the student has left his public school, it might be very valuable.

These are matters which I hope may come before the Board of Architectural Education for consideration, for I believe it will become necessary for the advantage of our students generally to bring about a co-ordination of the present opportunities for the advanced student who has completed the four years' course and who does not wish to immediately set up in practice. At present these opportunities of study are very varied, and, I will add, very interesting. To name only a few, there are our own new fifth year's course—and all our students should, if possible, go through the fifth year's course—and the prizes offered by the Royal Academy of Arts and the Royal Institute of British Architects. To obtain one of these prizes confers deserved honour upon him who grains it, and gives him credentials which help him to gain a good position for himself in some form or another, and which makes for him a real start in his artistic life. Besides this, these prizes give to the student the great opportunity of developing his knowledge by travelling for purposes of study. There exists, however, the difficulty that, while the competition for the prizes of the Royal Institute of British Architects is open to all *bonâ fide* architectural students; in the case of the Royal Academy the competitor must have passed through the full terms of studentship. As an old student of the Royal Academy, and one who has a great respect for its system of training, I can understand that its prizes are intended for its own students. But as one anxious to see a higher development of our general educational system, I feel it would greatly assist the student of to-day if he might enter the advanced classes of the Royal Academy, upon satisfying examiners as to his ability, without being obliged to go through the whole course. For instance, it would be an advantage for our students who have obtained their certificates here after several years' study to enter the Royal Academy Schools to compete for the Gold Medal and Travelling Studentship, and to reap the advantages of meeting with students who are studying the sister arts of painting and sculpture. A goodly number of our students are debarred at the present time from doing this through having to go through a probationary period on entrance, equivalent to the earlier years of the course completed by them here.

Foreign Studies.

The training which a student must undergo who intends to compete for one of these prizes is of great importance to him, while the fact that nearly all of them, such as the Royal Academy Gold Medal and Travelling Studentship, the Soane Medallion, the Tite Prize, the Pugin, the Owen Jones, and others of the Royal Institute of British Architects, carry with them an obligation upon the successful competitor to travel either in England or abroad for purposes of study constitutes their great educational value. In my opinion, the education of the advanced student is not complete until he has studied abroad. He may do this by independent travel, or he may join for a time the British School at Athens or the great French School—all admirable courses to pursue, and well worthy of your attention and consideration. Further, in connexion with this important part of a student's career I would like to mention the probable foundation of a large British school for advanced students in Rome. This possibility inspires the hope of an extension of the opportunities for advanced study of a particularly interesting kind. The

development of this scheme may necessitate at some future time such a co-ordination of the means of study to which I have alluded as might lead to the formation of a great National School of Fine Art and the crafts of building in this country, of which our schools would form a recognised part.

The formation of such an advanced school does not presuppose any slavish imitation of the French School, though I believe we may learn much from that school. For instance, we must not forget that the well-organised years of study of the best French students—those, for example, who have won the Prix de Rome and have spent the four years (which is the condition on winning that prize) in the study of old work in Italy and Greece—have contributed to the great achievements of French architects during the last 200 years. It was, at any rate, this very thorough system of training which helped Labrouste to build his library of Ste Geneviéve in Paris and his notable additions to the Bibliothêque National; which helped Duban in his building at the Beaux-Arts, and Duc at the Palais de Justice. We must recollect that the foremost students "set the pace" all the world over and inspire their fellows to put forth their best powers. We have here in England artistic forces which, if combined, would, I believe, prevent much waste of energy and power, and would tend to the production of finer work of a more national character. The chief principle which, in my view, leads to success is that if you are going to be a distinguished artist you must first of all be a distinguished student. No system of education is of use which does not bring out and form those qualities which make up what we know as "character." As the man is so will his work be; it is essential, therefore, for a student to have access to the best models and to be brought into contact with the best and highest thought, both ancient and modern. In this way will his own character be formed by the true artistic influence which flows from great men and great work. Carlyle says in all true works of art the Godlike is rendered visible. If so, the artist must be creative, and our aim should be to make our students receptive, imaginative, and fruitful in ideas and design, so that they may become creators of beauty. Our motto is "Design with beauty, build in truth." We might well add Shakespeare's words:—"By knowledge are we lifted up to the gates of Heaven." To our students I would say, let the motto of your Association become your own motto, and with it in your hearts take full advantage of the education offered to you here in both schools, remembering that the Evening School is the complement of the Day School. Make it an aim to keep yourselves ever open to the artistic influence by sincere and truthful study. Robert Louis Stevenson in one of his delightful essays says that the best artist is not the man who keeps his eye fixed on posterity, but the one who loves the practice of his art. And no art can give its author more intense pleasure than the mistress one to which you are devoted. Beauty in architecture has many manifestations; you may have it in the exquisitely delicate and refined detail or in that which is splendidly bold, in the stately and dignified plan and elevation, in the fine lines of the column, or in the sense of superb scale. We have in England to struggle against the small and petty detail which disfigures building after building to-day. We need to absorb into our minds the principles of broad and fine work. Look, for instance, at a fine capital of a pilaster of Francis I.'s time; the sweep of the line of the horns or volutes as vigorous as the clean line of a rapier, the flat relief of the intermediate carving as delicate as the damascene pattern on its blade.

I have lately been reading some of Sir Joshua Reynolds's "Discourses"—a work I would commend to your notice—and I was struck with the earnestness with which he impressed upon the students of the day the necessity of possessing themselves with the spirit of the great masters; and also with the manner in which he cheered them with encouragement to be determined to succeed when he roundly states "he should have felt the same determination to become the most eminent physician as he then felt to be the first painter of his age and country." Such a statement in its simplicity reminds one of the remark, attributed, I believe, to Mr. Edison, "that success in life is due to 1 per cent. of inspiration and 99 per cent. of perspiration." It was Sir Joshua Reynolds who, as I daresay some of you will remember, went as a distinguished young painter of thirty years of age to Italy to see for the first time the work of the great masters of the Renaissance. So impressed was he that he has written he felt he must become again as a little child, he had so much to learn. In this wonderful humbleness of heart Sir Joshua reminds me of Sir Christopher Wren, who showed the same willingness to learn as is illustrated in that most interesting letter, which you probably know, which he sent from Paris, where he had gone for the purpose of study. Surely these two men were much alike in character, with the same wide and sane way of looking at things and the same thirst for knowledge. That "spirit of the old masters" which they possessed made them strive for a right kind of perfection in their work. It made them reject what was small and petty and adopt the manly and virile. It made them discern and eliminate their defects, for, as Sir Joshua said to his students, "it was not by their defects that considerable artists acquired their reputation; they have a right to our pardon, but not to our admiration." He also taught that a student must not by mistaken industry lose his time in that which is merely ornamental. And in speaking of copying the old masters he says:—"Instead of copying the touches of those great masters, copy only their conceptions. Instead of treading in their footsteps, endeavour only to keep the same road. Labour to invent on their general principles and way of thinking. Possess yourself with their spirit. Consider with yourself how a Michelangelo or a Raphael would have treated this subject, and work yourself into the belief that your picture is to be seen and criticised by them when completed. Even an attempt of this kind will rouse your powers." He knew of his art, as we know of ours, that it is a progressive art; it is ever growing, and to-day, when science advances with strides, when space is being conquered, and distant lands may soon be easy of access, who among us can prophesy the future of the young architects? It shines in the distance as something mysteriously and gloriously interesting. And that future is not for these men only who carry off the most prizes. We cannot all be "Prix de Rome" men. It is for all who do good work, and again I quote from Robert Louis Stevenson:—"All who have meant good work with their whole hearts have done good work." No man, even the greatest, ever arrives at the ultimate goal; he does his part, and passes on his experience to the next in the race, and very soon that responsibility will be yours. The future is for you, as, again, it will be for the young men who come after you.

The Future.

In the meantime you have to prepare for that future, remembering that according to the truth and sincerity, the high ideal, that you put into your work so will your influence upon the public be, and with you rests the education of the public. In order to emphasise this I am again going to quote to you from Sir Joshua Reynolds's "Discourses," and I do not apologise for this, because, as I have told you, great men are our best teachers. In speaking to his audience on the subject of raising the public ideal, he reminds them of a remark of Euripides, who said to the Athenians, "I do not compose my words in order to be corrected by you, but to instruct you." And he adds:—"It is true to have a right to speak thus a man must be an Euripides. However, this much may be allowed, that when an artist is sure that he is upon firm ground, supported by the authority and practice of his predecessors of the greatest reputation, he may then assume the boldness and intrepidity of genius; at any rate, he must not be tempted out of the right path by any allurement of popularity which always accompanies the lower styles of painting." I think we may say that this is equally true of architecture. Great men, who are the truly thoughtful men, always sound again and again the note of character. They know that a nation's place depends upon its national character, and the men and women of the day are the nation. In a sense we are all artists; but to you young men, who are not only artists in this general sense, but belong to one of the noblest—perhaps the noblest—of the artistic professions, I would quote as a motto, and in conclusion of my address, King Alfred's words:—"This will I say—that I have sought to live worthily the while I lived, and after my life to leave to the men that come after me a remembering of me in good works."

Mr. A. Keen,

in proposing a vote of thanks to the President, said he had known Mr. Horsley from the day he first entered on his architectural career, and he congratulated him on the undoubtedly important position he had reached and on being chosen as President of the Association. Mr. Horsley had given them a thoughtful address, which he would rather think about than talk about. There was plenty of material in the address for reflection, but it was not an address about which it was easy to speak at short notice. Mr. Horsley had given them two quotations from King Alfred, both of which were peculiarly appropriate to them. The second quotation—"that I have sought to live worthily the while I lived, and after my life to leave to the men that come after me a remembering of me in good works"—was particularly applicable to the work of architecture, because the architect's work was so alluring; and if it was good it exerted a good influence on people for a long time, whilst if it was bad it exerted a bad influence, which also lasted for a long time. The other quotation, which dealt with tools and material, was also appropriate to them in that Association, because he claimed that the tools they used and the materials they put at the disposal of the students were the very best. At all events, they did not know how to make them better. Mr. Horsley had also referred to the advice given by Sir Joshua Reynolds, that a student must not by mistaken industry lose his time in that which is merely ornamental. He had always considered that the syllabus which the Board of Architectural Education had issued for the guidance of architectural schools was a remarkable document, and expressed in an able way the principle that all sound architectural design must proceed from building (using the word in its broadest possible sense)—that it must be an expression of the uses of the building. Mr. Horsley had had a great deal to say about architectural education in their school and in other places, but he always felt that there was a danger connected with the teaching of architecture in the school, in that it might tend to become too much a matter of pencil and paper, without sufficient reference to actual construction and material things. Those, however, who had had the direction of that school had always striven to direct the students in the opposite direction, and he always covered himself with the thought that in England, at any rate, they had had the Gothic revival, and the influence of that revival was, of course, in the direction of teaching that architectural design was an expression of the uses of a building. He did not think at first sight that anyone quite realised how great an influence the Gothic influence was and how strong it would continue to be for a long time, and how powerful a corrective it would be to the tendencies of what they might call the academic method of architectural teaching and training. They had heard of the hopes and aspirations of the founders of the Architectural Association sixty-four years ago, and, of course, these founders never for a moment realised how far the work which they commenced would go and how great an effect it would have in the three generations which had elapsed since they put their hands to the work. Nor did he think they at the present time could have any idea of how much farther it was likely to go before it stopped, if it ever did stop. There could be no doubt that they had arrived at a stage when there was going to be another shaking together of the dry bones, and it remained to be seen what kind of body arose from it. There were all sorts of useful schools carrying on work on different lines, but until they were co-ordinated to some extent they could not get the best possible results from them. Mr. Horsley had suggested that the Royal Academy should be brought in in some active way, and he himself had always felt that the

Academy had at its disposal such assets, which no other school in the country had, that if the Royal Academy could see its way to work in line with the other schools of architecture, and ultimately with the School at Rome, which, he understood, was to be much extended and developed, then the results could not fail to be of the best possible kind. Whether that would come about or not it was impossible to predict, and it seemed to him that the Academy must surely realise before long that its right place was at the head of all the other architectural schools, and that students from these schools ought to be sent there, and, if possible, to Rome afterwards. He did not himself know what the school at Rome was to consist of—whether it was to be merely a school of archæology and architecture, or whether sculptors and painters were to be associated. If, however, something of the latter kind were done, then they might have a British school at Rome which they would have reason to feel exceedingly proud of. He believed there would be an opportunity before long to send out students in considerable numbers, and if the school was of such a character as he hoped, then the students would be in a very enviable position.

Mr. Curtis Green,

who seconded the motion, said that in 1892, the year when he began his architectural pilgrimage, a book was published entitled "Architecture: A Profession or an Art." The master he was then with presented him with a copy, and attached to it was a little challenge that he should answer the question in his own person. It consisted of a series of essays edited by Mr. Shaw and Mr. Jackson and written by such eminent men as the late Mr. Bodley, Professors Lethaby and Blomfield, Mr. Newton, and Mr. Prior; and one of the most inspiring essays, on "Unity in Art," was by Mr. Horsley, their President. He read the essay again last night, and it was a delightful study, as fresh, and unfortunately in some respects as true, to-day as the day when it was written. Mr. Horsley became a name to him—a name standing up amongst those who counted. Twelve years ago he was so fortunate as to become a neighbour of Mr. Horsley, and found that he was as good as his written word, and that he admitted unknown and untried young men to the circle of his acquaintance and good-fellowship. Mr. Horsley probably influenced for good his slow and painful architectural development. They had all had some experience of their new President during the years that he had worked for the Association. Those of them who were so fortunate as to go on the excursion this year knew something of his qualities of leadership. He was sure that he might speak for the present Council by saying that they desired nothing better than to serve their art by following his lead and by doing what they could to make his year of office worthy of him and of the best traditions of the Architectural Association. They had listened that night to his Presidential address, the scholarship and wise discretion of which had inspired them greatly. Only those, like Mr. Keen, who had had this honour thrust upon them could speak adequately of the time, the labour, and the self-sacrifice demanded of the President for the time being in carrying on the work of the Association. That Association stood for unity in art, and they were the spiritual offspring of the masters of architecture and of the founders of the Association, and those of them who might read their President's address would feel that the Association was living up to its great reputation of service.

Mr. Paul Waterhouse

said the President had spoken on a subject which was most interesting to them—themselves. He did not mean to say that they were all students in the sense of being between the years of eighteen and twenty-eight, and, indeed, last week he found himself in the venerable position of being the parent of a student. But he would like to say that no man who was an architect or hoped to be useful as an architect could ever abandon himself to the feeling that he had become aged or even middle-aged. Architectural work necessitated in the producer that spirit of eternal youth which made a man spring to a new job with the same delight that a student started off to win the Soane Prize, for example. Their President had trodden on very dangerous ground by suggesting a comparison between the architectural education of his day and that of the present. They knew there were architects of all kinds. There were architects who were successful without being good draughtsmen, and excellent draughtsmen who were not successful architects. Now and then they came across men who were a brilliant combination of both. Mr. Horsley was one of them, and he had also discovered that when an architect reached a position of eminence he was expected to be a public speaker as well. That night their President had shown beyond all possible doubt that he combined the three great qualities of the modern architect, and therefore when he asked them to compare the methods of to-day with those of the past he must remember that many of them would be apt to say, "Give us the good old days if they produced such men as we have sitting there."

The resolution having been carried,

The President

briefly replied, and remarked that he realised he had a difficult task in following Mr. Keen. It was his firm intention, however, to do all he possibly could during his year of office to further the best interests of the Association.

South Side of Chancel.
(From Professor Cole's "Analysis of the Church of St. Mary, Cholsey.")

ARCHITECTURAL SOCIETIES.

Architectural Craftsmen's Society: The Glasgow Technical College.

In the course of his presidential address to the Glasgow Technical College Architectural Craftsmen's Society on Friday evening Mr. James S. Boyd, Licentiate R.I.B.A., dealt with the application of practical geometry to (*a*) the solution of problems in stonecutting, and (*b*) to the full-size drawing down and mould cutting in masonry work.

Referring to the training of young masons who desire to become qualified foremen, he said that such should possess considerable skill in the application of practical geometry to the varied and complicated masonry problems which at times occur. Otherwise he would have difficulty in making the necessary scale drawing from which he obtains the shapes and dimensions of the blocks for ordering, and he would have even greater difficulty in drawing down the work full size on the drawing floor. Mr. Boyd described by demonstrations how to set out arches of various forms on the drawing floor, and how the moulds and bevels are developed in work of double curvature, skew bridges, interpenetrations of vaults, domes, and other more or less complex masonry constructions. Referring to the cutting of zinc moulds, he condemned the general custom of giving that work to the joiner instead of the mason, on whom rests the responsibility of producing correct work. In concluding the address, he recommended the younger masons to uphold the dignity of their crafts by making themselves thoroughly efficient, not merely as hewers of stone, but as scientific craftsmen worthy of the position of foremen.

BOOKS.

An Analysis of the Church of St. Mary, Cholsey, in the County of Berkshire. By F. J. COLE, D.Sc.Oxon., Professor of Zoology, University College, Reading. With twenty-three plates. (Oxford: B. H. Blackwell, Broad-street. London: Henry Frowde, Amen-corner. Reading: G. A. Poynder. 5s. net.)

THIS little work "is issued in accordance with a scheme for the publication of studies dealing with particular aspects of local history," the object of the enterprise being

the very laudable one of stimulating public interest in the history of Reading and the neighbouring counties, and "to afford a means by which the general historical teaching at University College [Reading] may gradually become connected with, and be illustrated by, the detailed evidence which is furnished by local history." The work is not lengthy, consisting—apart from some twenty excellent full page photographic illustrations of the church—of but sixty pages of descriptive matter; but it forms a singularly able and exhaustive monograph on an interesting building, and bears evidence of much careful investigation and inquiry by the author. The title is not inapt, for an analysis the work is in every way, and the University of Reading are to be congratulated not only upon this scheme for the production of these studies in local histories—of which three, including the volume under notice, appear to have been issued—but upon the very able work Dr. Cole has prepared in his analysis of the church. Cholsey Church must be familiar to most architectural students, but we may with advantage, in noticing the volume, quote the opinion of the author, who says:—"The main interest of our church, apart from an engaging variety of minor problems, lies in its ground plan, and in the beautiful design of its east end. . . . I not only fail to find any evidence of Saxon work in the church at Cholsey, but on the contrary there are many grounds for holding that the oldest portions of the existing church are not antecedent to the twelfth century." The work includes a detailed note on the mouldings, with careful drawings, and some excellent photographic illustrations of the building.

ERRATUM.

In our notice of "The Corrosion of Iron and Steel" (p. 216, issue of August 25) the author's name is given incorrectly; it should be J. Newton Friend.

BOOKS RECEIVED.

STRUCTURAL ENGINEERING. By Joseph Husband and William Harby. (London: Longmans, Green, & Co. 7s. 6d. net.)

THE HISTORICAL GROWTH OF THE ENGLISH PARISH CHURCH. By A. H. Thompson, M.A., F.S.A. (London: Cambridge University Press. 1s. net.)

ELECTRICAL MINING INSTALLATIONS. By P. W. Freademacher, A.M.Inst.E.E. (London: Constable & Co. 2s. net.)

MILL AND FACTORY WIRING. By R. Geo. Devey, A.M.Inst.E.E. (London: Constable & Co. 2s. net.)

COSTUMES, TRADITIONS, AND SONGS OF SAVOY. By Estella Canziani. Illustrated. (London: Chatto & Windus. 21s. net.)

GENERAL NEWS.

Professional Announcements.

Mr. Robert Marchant, A.R.I.B.A., has removed from 28, Theobald's-road, to 2, Bedford square, W.C.

Mr. Francis Osler, A.R.I.B.A., has removed from 5, Verulam-buildings, Gray's Inn, to 9, Gray's Inn-square.

The Grafton Gallery Exhibition.

The Exhibition opened at the Grafton Gallery on Tuesday by the Duke of Connaught is entirely pictorial. It has been arranged in aid of the National Art Collections Fund, whose aims are so worthy of support. Two works by Guardi have architectural interest, as have several drawings from Mr. Heseltine's collection and others, among them sketches by Robert Adam, Paul Sandby, and Thomas Girtin, lent by members of the newly-formed Walpole Society. Lord Curzon in his introductory speech made some good suggestions regarding State aid to art. In these days, he said, it was not possible for the National Gallery with its limited resources to resist the Transatlantic and Continental competition, and he urged that the Government grant of 5,000*l.* a year to the National Gallery should be increased to 25,000*l.* Sir Edgar Vincent, putting the obligation at 50,000*l.* per annum, thought that a liberal policy by the State in art matters was the best possible finance.

The Road Board: Grants to Highway Authorities.

During the months of July, August, and September, 1911, the Road Board, with the approval of the Treasury, have made advances amounting to 131,764*l.* from the Road Improvement Fund to County Councils and other highway authorities as follows:—For the improvement of road crusts (including grants towards tar macadam, etc., and surface tarring), 111,555*l.*; for road widenings and improvement of curves and corners, 9,120*l.*; for road diversions, 7,308*l.*; for construction and improvement of bridges, 3,781*l.* The total grants up to September 30 (including those contained in the lists published on February 11, April 29, and July 29 last) amounted to 407,154*l.*, as follows:—For the improvement of road crusts, 321,445*l.*; for road widenings and improvement of curves and corners, 44,856*l.*; for road diversions, 16,906*l.*; for construction and improvement of bridges, 23,947*l.* In addition, the sum of 8,173*l.* has been advanced by way of loan. The work of putting down trial lengths of twenty-three different kinds of road material on a section of the London-Folkestone Road between New Eltham and Sidcup has now been completed. Five trial lengths have also been put down on the Portsmouth Road in the Borough of Wandsworth, between Wimbledon Common and Robin Hood's Gate.

Sale of Properties.

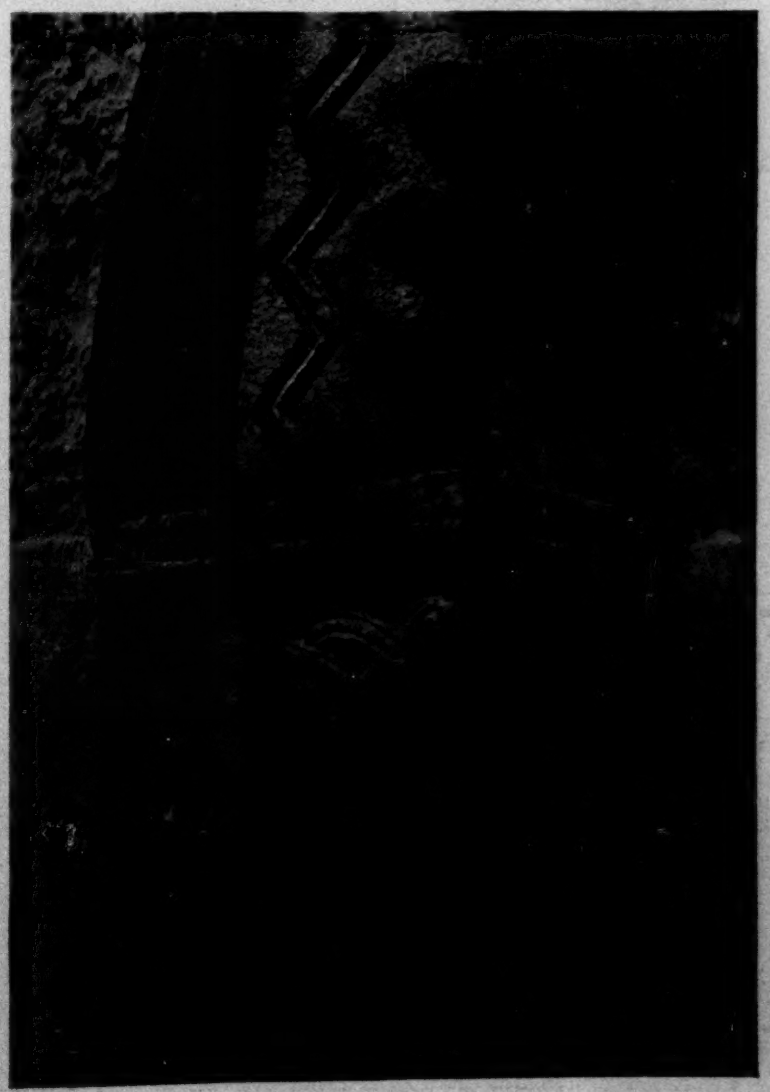
The estates that have just been placed in the market comprise Woodcote Park, near Epsom, about 350 acres, of which the mansion has a façade ascribed to Inigo Jones, with painted ceilings by Verrio, and carving by Grinling Gibbons or his school. Burford Priory, Oxfordshire, represents the St. John's Priory, which appertained to the wealthy abbey of Black Canons, at Eynsham, dedicated to the Virgin and SS. Peter and Paul, and founded by William, Duke of Gloucester, in or about 1170; the mansion, built by Edward Harman soon after the Suppression, was bought by Sir Lawrence Tanfield, who bequeathed it, with the manor, to his grandson, Lucius Carey, Viscount Falkland, who fell at Newbury, and had previously sold the estate to Speaker Lenthal; Lenthal enlarged the house and built the chapel; Colonel B. de Sales La Terriere has latterly improved and renovated the property. Burford Priory is depicted in Waller's painting, 'The Empty Saddle"; on the estate are Kitt's Quarries, which supplied some stone for the interior of Westminster Abbey and St. Paul's. Redlynch, near Bruton, Somerset, a seat of Lord Ilchester, extends to 4,500 acres, and the house was built in 1672 for Sir Stephen Fox, ancestor of the present possessor. No. 139, Piccadilly, the home of Lord Byron after his marriage, and of the Duke of Queensberry, and latterly of the late Lord Glenesk, for whom the stone façade was built after designs by R. S. Wornum; the lease, of which sixteen years are unexpired, is held from the Woods and Forests at a ground rent of 812*l.* 10s.

No. 119, Piccadilly.

These premises, lately vacated by the Royal Automobile Club, have been taken over and redecorated for purposes of the newly-established Cavendish Club. The house, which is situated upon the Sutton estate, was converted for the former Club a few years ago, and some structural alterations were since made for them by Mr. E. Keynes Purchase.

Changes in Haymarket.

Messrs. Garrard & Co., Ltd., have just removed from their old house at the corner of Panton-street to new premises in Albemarle and Grafton streets. The house was originally opened by the sign of the "King's Arms" by George Wickes in 1721; to him succeeded William Garrard, his assistant; in 1791 the business passed to Robert Garrard and his sons, as Crown jewellers and goldsmiths. Nos. 18-21, at the corner (north) of Orange, formerly James, street, with Nos. 1, 3, and



South Door of Nave—West Jamb.

(From Professor Cole's "Analysis of the Church of St. Mary, Cholsey.")

5, Orange-street, are to be rebuilt by Mr. W. Cave for Messrs. Burberry, Ltd. Messrs. Garrard's new premises have been built from designs by Messrs. Ernest George & Yeates.

Carpenters' Company Lectures: University College.

As may be seen in the list of Meetings (p. 391), Mr. E. S. Prior, F.R.I.B.A., begins next week his course of lectures at University College on "English Mediæval Architecture." The subject is attractive and there should be a good attendance. Free admission tickets may be obtained from the Secretary to University College, or from the Clerk to the Carpenters' Company.

Newcastle Municipal Buildings.

The site considered by the Committee to be the most suitable for the New Town Hall is that of the present Northumberland Baths in the Northumberland-road. The question of cost is before a Sub-Committee.

The French Renaissance.

Messrs. Bell will publish next week the history of Renaissance French architecture, on which Mr. Reginald Blomfield, A.R.A., has been engaged for many years. It will be a companion to the same author's well-known work on English Renaissance. The book will be issued in two volumes, and will be profusely illustrated from drawings by the author, scarce engravings, and other sources.

COMPETITION NEWS.

Langside District Library, Glasgow.

For this, the last of the district libraries, a site has now been fixed. The City Council on the 27th ult. approved of the recommendation of the Finance Committee to accept an offer of ground at No. 4, Sinclair-drive, containing about 1,500 sq. yds., for the sum of 1,000*l.* A special Sub-Committee, after an inspection of the ground, considered that it was admirably adapted for the purpose. As Mr. Carnegie had gifted to the Corporation a further sum of 15,000*l.* required for the erection of the two remaining libraries for the districts of Possilpark and Langside on condition that the cost of sites should not be made chargeable to the rates, it was agreed that a grant be given from the Common Good for the purchase of this site for the Langside Library.

As in the case of the other Glasgow libraries, an open competition will be promoted for the selection of a suitable design.

The successful plan for the Possilpark Library, which was the last competition promoted, was published in the *Builder* for March 31 last, and shows the type of plan favoured.

An Extraordinary Suggestion.

We cull the following from the advertisement columns of the *Glasgow Herald*:—

"The Town Council of Armadale invite architects to submit plans for a public hall and offices, costing not more than 2,500*l.*, completed, painted and furnished. A premium of 15*l.* for the selected design will be paid on its being ascertained that the design can be carried out within the cost stated, and 10*l.* will be paid for the next. The architect submitting the successful design will be entrusted with the work at the usual professional remuneration. Architects intending to submit plans will meet the Town Council on the ground at Armadale on Thursday, October 12, at 1.30."

It seems to suggest that, while public bodies are fully alive to the advantages to be gained by competitions, they have still much to learn regarding the conduct of the same. With entries as numerous as we have had in some recent competitions, we fear the travelling facilities to Armadale will prove inadequate on the 12th inst.

CONSERVATORY LOUNGE AT THE BALHAM CONSTITUTIONAL CLUB.

THIS little building is an addition to the club premises, and forms a lounge connecting concert-hall, reading and billiard rooms.

It is built of thin hand-made red bricks with a wide joint, and is surmounted with an entablature of concrete finished with cement and coloured.

The roof is of glass and lead.

The window frames and casements are of deal as well as the doors, and all painted a cream tone.

The interior is finished in plaster, with a simple treatment of pilasters and panels distempered white, and the floor is covered with dark red quarries.

The architects are Messrs. William & Edward Hunt.

INTERCOMMUNICATION COLUMN.

External Woodwork.

Will a reader say what is the best way to treat the outside woodwork of a house of wood and brick? It is like an old Chester house, similar to those situated in the Rows, and is probably of the Queen Anne or Elizabethan period. The outside woodwork has always been oiled and then varnished. Would it be preferable to paint it, or to continue oiling it? If oiling, how many coats of oil are necessary, and should a finish be given with a coating of varnish? What kind of oil is the best to use and what kind of varnish? Is there any book on this subject?

Barmouth, Wales. A. H. M.

Terrazzo Flooring.

How is terrazzo flooring laid? Full particulars will oblige. EDWIN F. SCAMELL.

Salisbury.

[**** The following specification is given by a well-known firm, whose name will be sent if desired:—A layer of ¼ in. of sand and cement, two and a half to one, to be laid on floated surface provided by the builder. On top of this layer about ½ in. thick of compost of marble chips ¼-in. to 5-16-in. mesh, and cement gauged two to one is to be laid. The surface of this is then to be thickly sown with marble chips average ½-in. to ¾-in. mesh, and the whole floor to be then rolled to imbed the larger pieces in the smaller, and trowelled to a true surface. When sufficiently set the floor is to be rubbed down with stone to remove the surface cement and smooth the face. It is to be afterwards sprinkled with dry cement and rubbed down a second time to fill up any pinholes and to give the required grit polish.—ED.]

Addition to Balham Constitutional Club. (*See also page 379.*)
Messrs. William & Edward Hunt Architects.

EDITORIAL SUMMARY.

"The Purpose of the Architectural Competition" is the subject of our leading article.

The future of the Architectural Association is considered in the second leader (p. 380).

"Notes" (p. 381) are: "'Cheap' Churches"; "The Architect's Garden"; "The Survey of London"; "The L.G.B. and Civic Aspirations"; "The Empire Palace Fire"; "Oriel College, Oxford"; "The Disaster at Austin, Pennsylvania"; Railway Nationalisation."

The eighth section of Mr. Shaw Sparrow's article on "The Story of the Bridge" begins on p. 382. The point discussed is the position of architects in such enterprises.

A report of Mr. G. C. Horsley's Presidential Address to the Architectural Association is given on p. 385.

Professor Cole's "Analysis of the Church of St. Mary, Cholsey," is reviewed on p. 388.

The Monthly Review of Construction (p. 393) opens with an article on "Timber in Roof Coverings." Other articles (p. 395) are on "The Colouring of Wood" and "A Reinforced Concrete Flooring."

An article on "The Appointment of an Arbitrator" heads the Building Trade Section (p. 398), and a note follows on "Extraordinary Traffic."

The Master Painters' Convention at Derby is referred to on p. 398.

Illustrations are given on p. 401 of the drawings by Mr. G. Wyville Home which obtained the Silver Medal of the Architectural Association.

MEETINGS.

FRIDAY, OCTOBER 6.

Birmingham University.—Mr. Raymond Unwin's inaugural lecture on "Civic Design," in the Mason College Building. 5.30 p.m.

SATURDAY, OCTOBER 7.

Institution of Municipal Engineers (Yorkshire and Northern Districts).—Meet at N.E.R. station, Leeds, 10.55 a.m. Visit to Messrs. Thomas Green & Sons, Ltd., Smithfield Ironworks, to the Headingley Electric (Water) Pumping Station, and to the new Filter Beds.

MONDAY, OCTOBER 9.

Incorporated Clerks of Works' Association (Carpenter's Hall, London-wall).—Monthly meeting. 8 p.m.

MONDAY, OCTOBER 2, TO TUESDAY, OCTOBER 10.

Royal Institute of British Architects.—The Ninth International Congress of Architects, Rome.

THURSDAY, OCTOBER 12.

University College.—First of eight public lectures by Mr. Edward S. Prior, F.S.A., F.R.I.B.A., on "English Mediæval Architecture." 6 p.m.

Sheffield Society of Architects.—President's Address and Exhibition of Students' Work.

FRIDAY, OCTOBER 13.

London Salon of Photography (5a, Pall-mall).—Mr. Arthur Marshall, A.R.I.B.A., on "With a Camera in Holland." 8 p.m.

Glasgow Architectural Craftsmen's Society.—Mr. J. S. Glen-Primrose on "The Microscopical Examination of Architectural Materials."

ILLUSTRATIONS.

No. 10, Carlton House-terrace.

MESSRS. DETMAR BLOW & FERNAND BILLEREY are the architects of this building, carried out for Viscount Ridley. The work, started in 1906 and completed the following year, consisted in remodelling the interior structure and decorating that part of Nash's building on the east side of the Duke of York's steps. Though the main walls and general distribution of the first floor were retained, the former inside arrangement of areas, service stairs, lift wells, etc., was swept away, and the old staircase was pulled down in order to build a new staircase of architectural proportions and to simplify the planning of the drawing-rooms. Viscount and Viscountess Ridley, who directed the work with the greatest interest, insisted on great simplicity in design and great care in the elaboration of the detail.

The walls of the entrance-hall and those of the principal and secondary stairs were faced with Caen and Painswick stone, whilst the steps themselves, 7 ft. 6 in. long, were built in solid black marble; the ceilings and vaultings were formed in stucco, jointed to match the stone.

The wrought-iron and bronze railing was executed by Mr. W. Bainbridge Reynolds, the bronze ornaments being specially modelled under the architects' directions by M. E. Madeline.

The drawing-rooms were panelled, the mouldings and ornaments being gilt and "patines," in order to give them the appearance of old work. The ceilings of the two end drawing-rooms were enriched with modelled plaster decorations, while that of the gallery was covered with a painted canvas by MM. Bremond & Tarkmain.

The work of building and decorating was carried out by Messrs. Trollope.

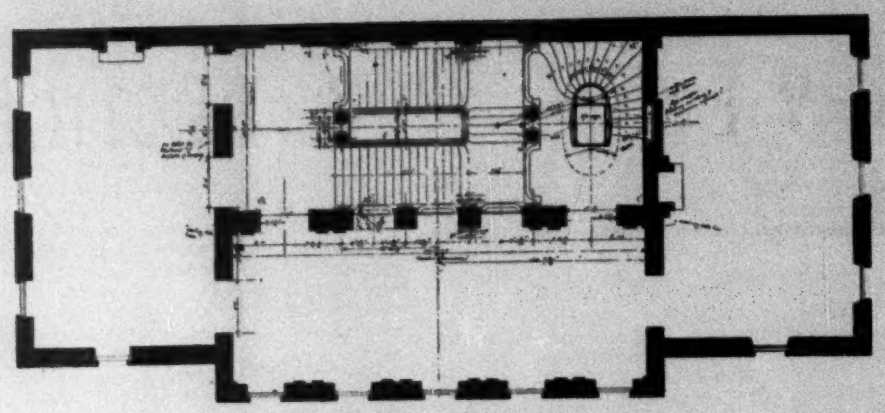
The Story of the Bridge.

THE illustrations of the bridges at Avignon and Toledo are in connexion with Mr. Shaw Sparrow's eighth article (p. 382).

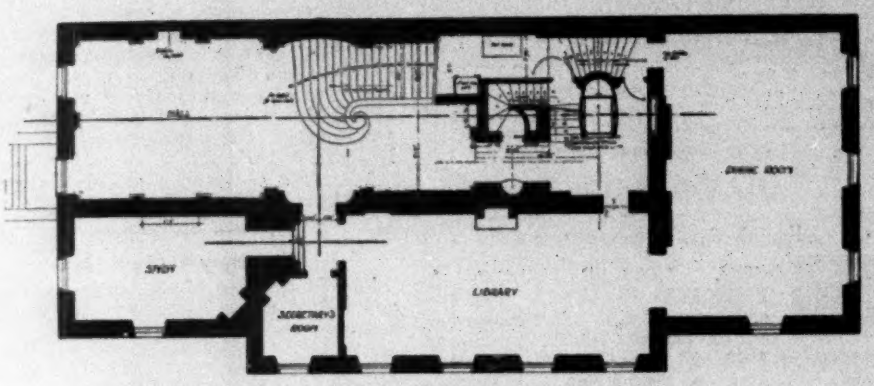
Burlington Arcade.

THE additional story to the Piccadilly frontage of the Burlington Arcade, shown on the accompanying plate, has been recently erected. It

Ballroom: No. 10, Carlton House-terrace.
Messrs. Detmar J. Blow, F.R.I.B.A., & F. Billerey, Architects.



First Floor Plan.



Town Residence for Viscount Ridley: Ground Floor Plan.
Messrs. Detmar J. Blow, F.R.I.B.A., & F. Billerey, Architects.

is surmounted by the arms of Lord Chesham, which are executed in terra-cotta made by Messrs. Stiff, of Lambeth. Mr. Maddison, of Canning Town, was the contractor, and Professor Beresford Pite, F.R.I.B.A., the architect.

The original fine yellow brick facings of the upper portions of the internal elevations of the Arcade have been cleansed from the paint-work of nearly seventy years and restored.

Nos. 55 and 56, Threadneedle-street.

THIS building has been erected for Messrs. W. B. Blydenstein & Co., who, previous to the rebuilding, occupied No. 56. They occupy the ground, first, and basement floors; the other floors are in various occupations, and are approached from a staircase in Hercules-passage.

The floors used by Messrs. Blydenstein & Co. have been fitted up to suit their requirements. The walls are covered in marble and faïence, and all fittings are in hard wood, mahogany being used for the offices, and fumed oak in the partners' rooms.

The front of the building is in Portland stone, with metal casements to the windows, and has been designed so as to give as much light as possible to the office floors.

The architect for the building is Mr. Chatfeild Clarke, F.R.I.B.A., and the builders are Messrs. Hall, Beddall, & Co.

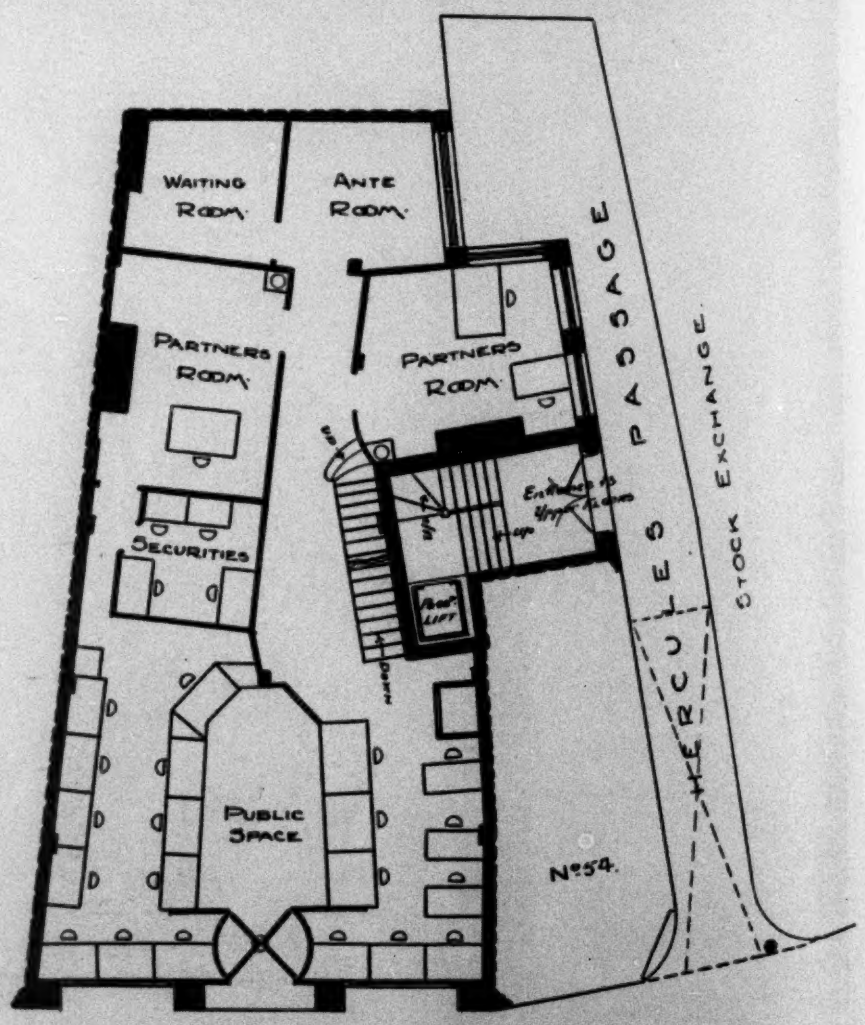
FIFTY YEARS AGO.

From the *Builder* of October 5, 1861.

The National Exhibition in Florence.

A MEMORABLE day was September 15 for Florence—the joyous excitement shared by all classes, the richly varied decoration of streets, the display on every side of national colours and symbols, and the enthusiastic reception given by this people to their King, altogether combining in what seemed the highest expression of that new life to which liberated Italy has awakened; and at the same time asserting for her—the "Etrurian Athens"—that brilliant position vindicated by her past and present; that title which whatever be future contingencies, must continue to command regards and honours for her as, by indefeasible right, the intellectual if not the political capital of united Italy. As for the scene in the palace of the National Exhibition that morning, it was rather a court ceremonial than anything else, though, indeed, most beautiful to behold and attended with demonstrations most fervent.

The story of Italian exhibitions, industrial and artistic, may be said to have its centre in the Tuscan examples. Under the boldly-innovating government of Peter Leopold was ordered the first public exhibition of fine arts this country had yet beheld, in 1791. French invaders next set the examples, to be followed with more systematic procedure in the present century; and under their auspices took place at Turin, 1805, '11, '12, the first series of general exhibitions for all local produce, artistic, industrial, agrarian. After the legitimate restorations were founded in the same kingdom, under Charles Felix, triennial industrial exhibitions, the first of which took place in the beautiful suburban palace of Valentino, near Turin, in 1829, the number of exhibitors being 502; and with what success this system advanced in subsequent years appears from the steady increase of those numbers, till, in the last instance, at the Turin exhibition of '58, it reached the maximum of 1784, among whom 931 then received prizes.



Nos. 55 & 56, Threadneedle-street, E.C.
Mr. H. Chatfeild Clarke, F.R.I.B.A., Architect.

INTERNATIONAL ART EXHIBITION, VENICE.

The Municipal Council of the City of Venice will hold their Tenth International Art Exhibition on April 15-October 31, 1912. Artists of international repute and those who have won distinction in national and foreign exhibitions are invited to send in works, but, with the exception of "one-man shows," works already shown in Italy will be excluded. Goods must be delivered on the premises, Giardini Pubblici, not later than March 10, and artists, whether invited or not, will be allowed rebates of 50 per cent. for carriage, and will not be charged for unpacking or re-packing. The Municipality will allot a sum for purchasing works of art, to be chosen by a committee of five elected by them, and to be then placed in the International Gallery of Modern Art. Communications should be addressed to the General Secretary, A. Feadeletto, Municipio di Venezia, and notification of intention to exhibit should be made before January 1 next.

PHOTO-INK SPRAGUE & C° LIM° 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

VISCOUNT RIDLEY'S STAIRCASE: 10 CARLTON HOUSE TERRACE.—Messrs. Detmar J. Blow, F.R.I.B.A., and F. Billerey, Architects.

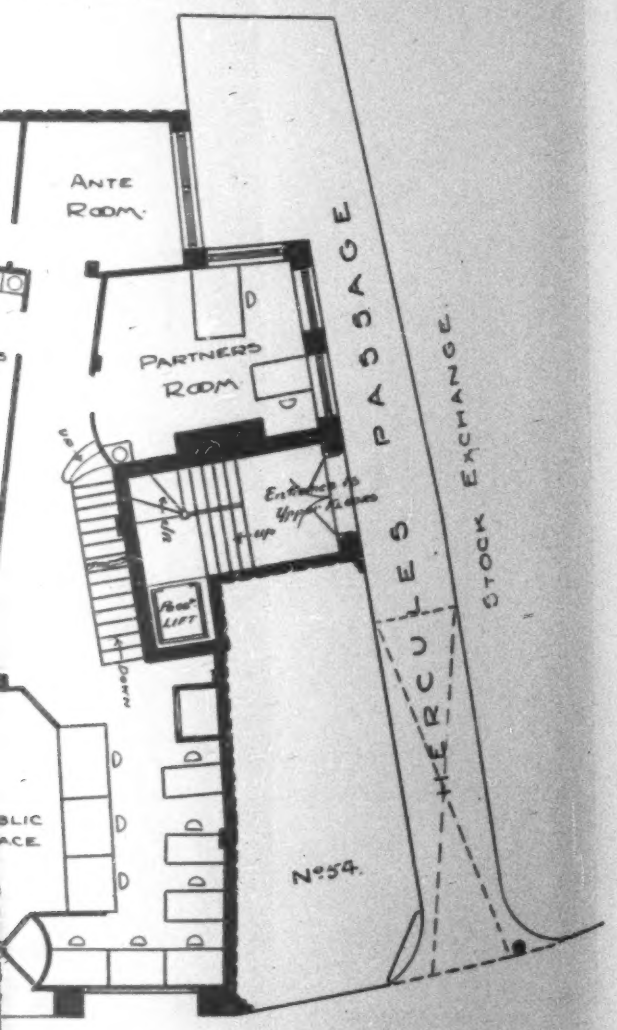
beautiful to
demonstrations

tions, industrial
have its centre

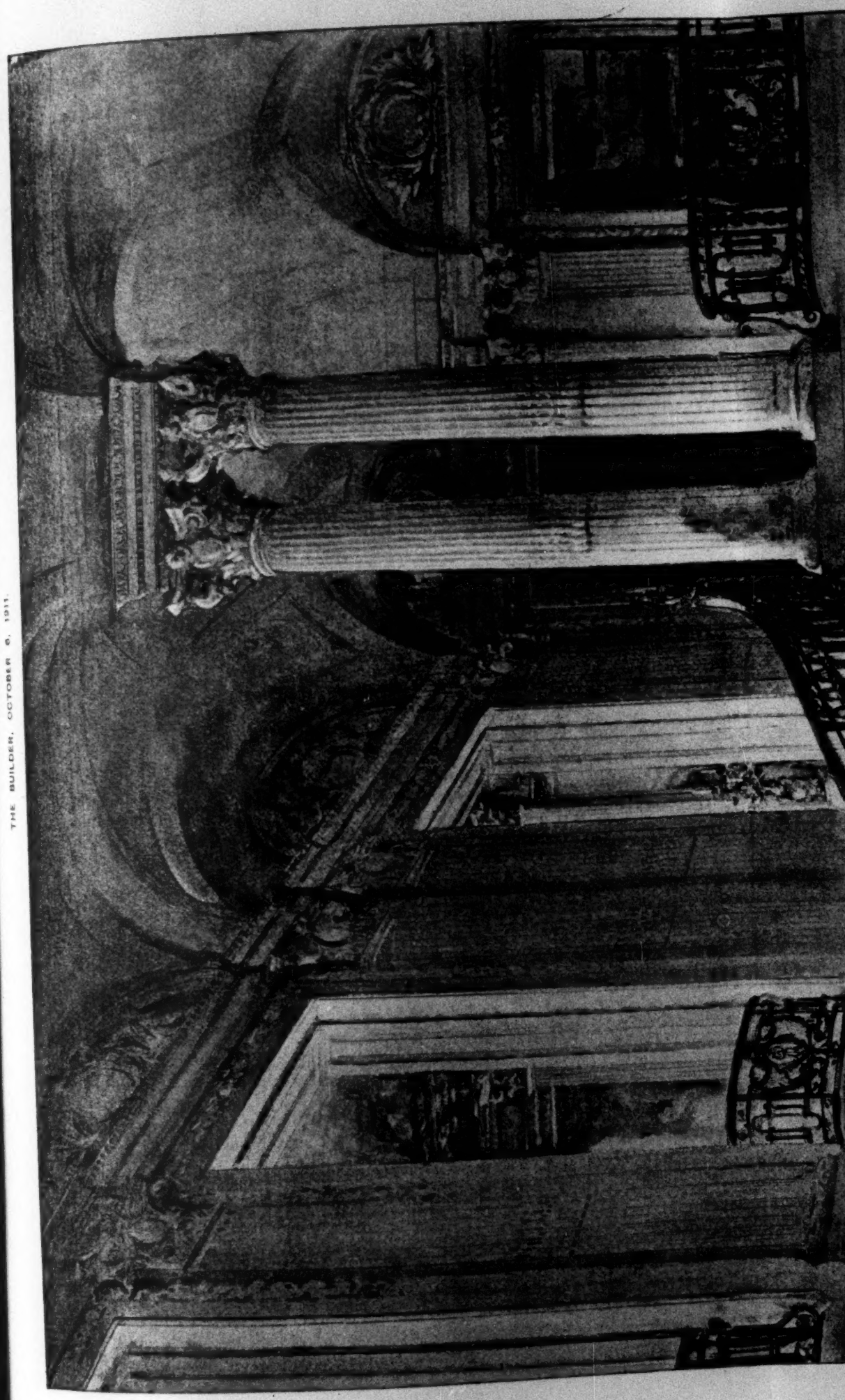
in the Tuscan examples. Under the boldly-innovating government of Peter Leopold was ordered the first public exhibition of fine arts this country had yet beheld, in 1791. French invaders next set the examples, to be followed with more systematic procedure in the present century; and under their auspices took place at Turin, 1805, '11, '12, the first series of general exhibitions for all local produce, artistic, industrial, agrarian. After the legitimate restorations were founded in the same kingdom, under Charles Felix, triennial industrial exhibitions, the first of which took place in the beautiful suburban palace of Valentino, near Turin, in 1829, the number of exhibitors being 502; and with what success this system advanced in subsequent years appears from the steady increase of those numbers, till, in the last instance, at the Turin exhibition of '58, it reached the maximum of 1784, among whom 931 then received prizes.

INTERNATIONAL ART EXHIBITION, VENICE.

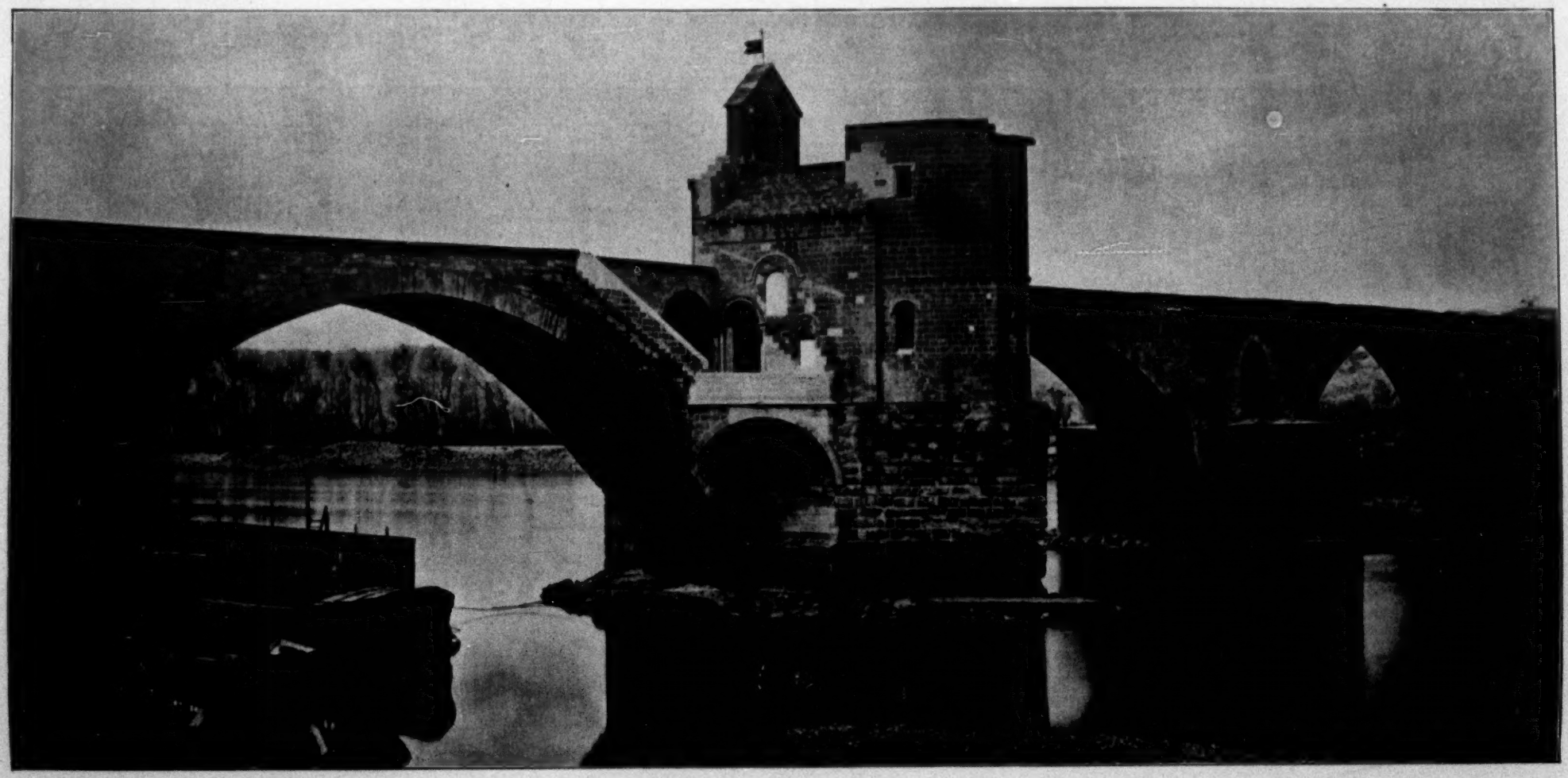
The Municipal Council of the City of Venice will hold their Tenth International Art Exhibition on April 15-October 31, 1912. Artists of international repute and those who have won distinction in national and foreign exhibitions are invited to send in works, but, with the exception of "one-man shows," works already shown in Italy will be excluded. Goods must be delivered on the premises, Giardini Pubblici, not later than March 10, and artists, whether invited or not, will be allowed rebates of 50 per cent. for carriage, and will not be charged for unpacking or re-packing. The Municipality will allot a sum for purchasing works of art, to be chosen by a committee of five elected by them, and to be then placed in the International Gallery of Modern Art. Communications should be addressed to the General Secretary, A. Feadeletto, Municipio di Venezia, and notification of intention to exhibit should be made before January 1 next.



LE STREET
55 & 56, Threadneedle-street, E.C.
Mr. H. Chatfeild Clarke, F.R.I.B.A., Architect.



VISCOUNT RIDLEY'S STAIRCASE: 10 CARLTON HOUSE TERRACE.—Messrs. Detmar J. Blow, F.R.I.B.A., and F. Billerey, Architects.



Sprague & Co., Ltd., Printers, 4 & 5 East Harding St., E.C.

PONT ST BÉNÉZET, AVIGNON, XIIth CENTURY.

"THE STORY OF THE BRIDGE."—VIII.

THE BUILDER, OCTOBER 6, 1911

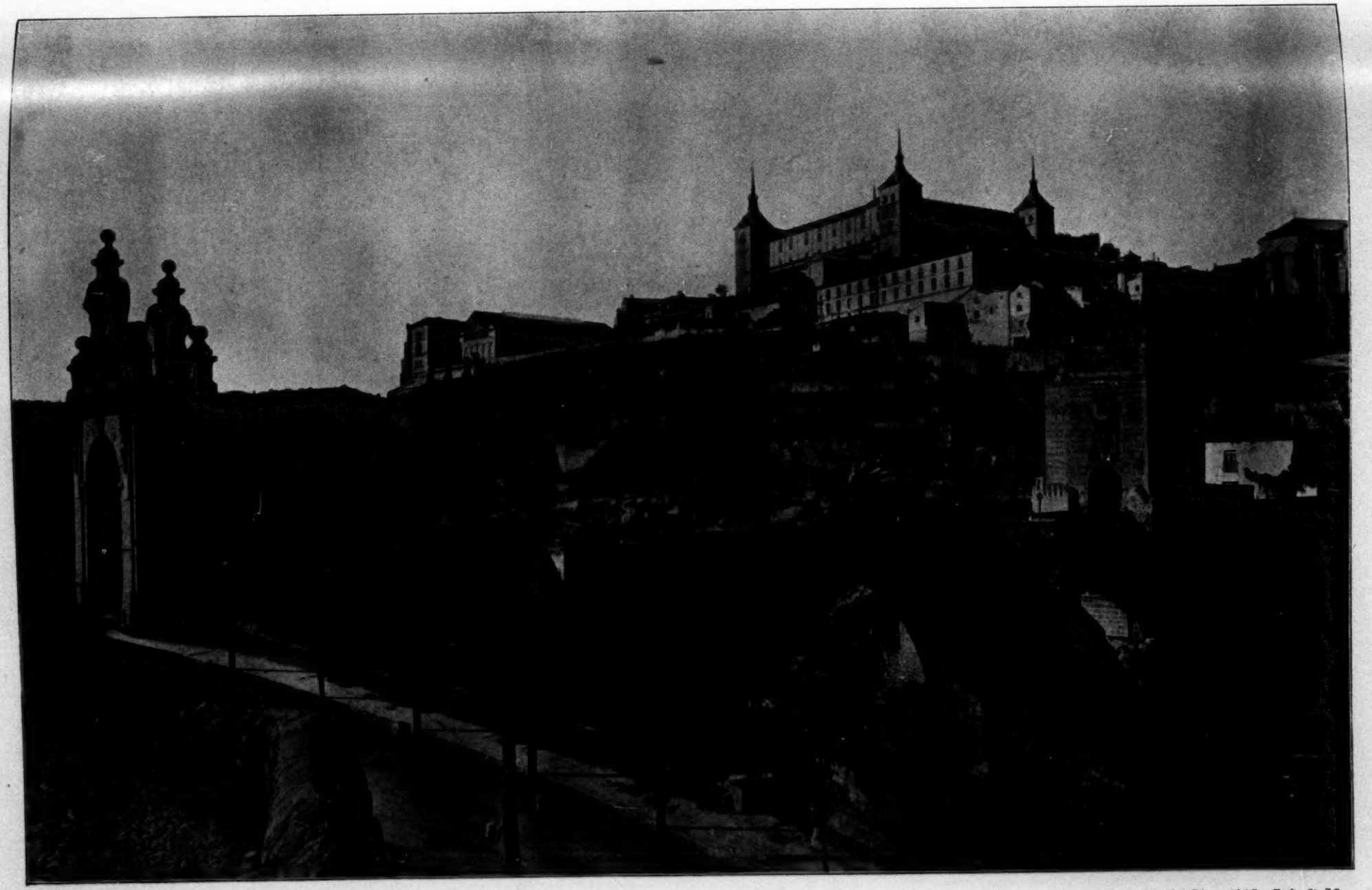


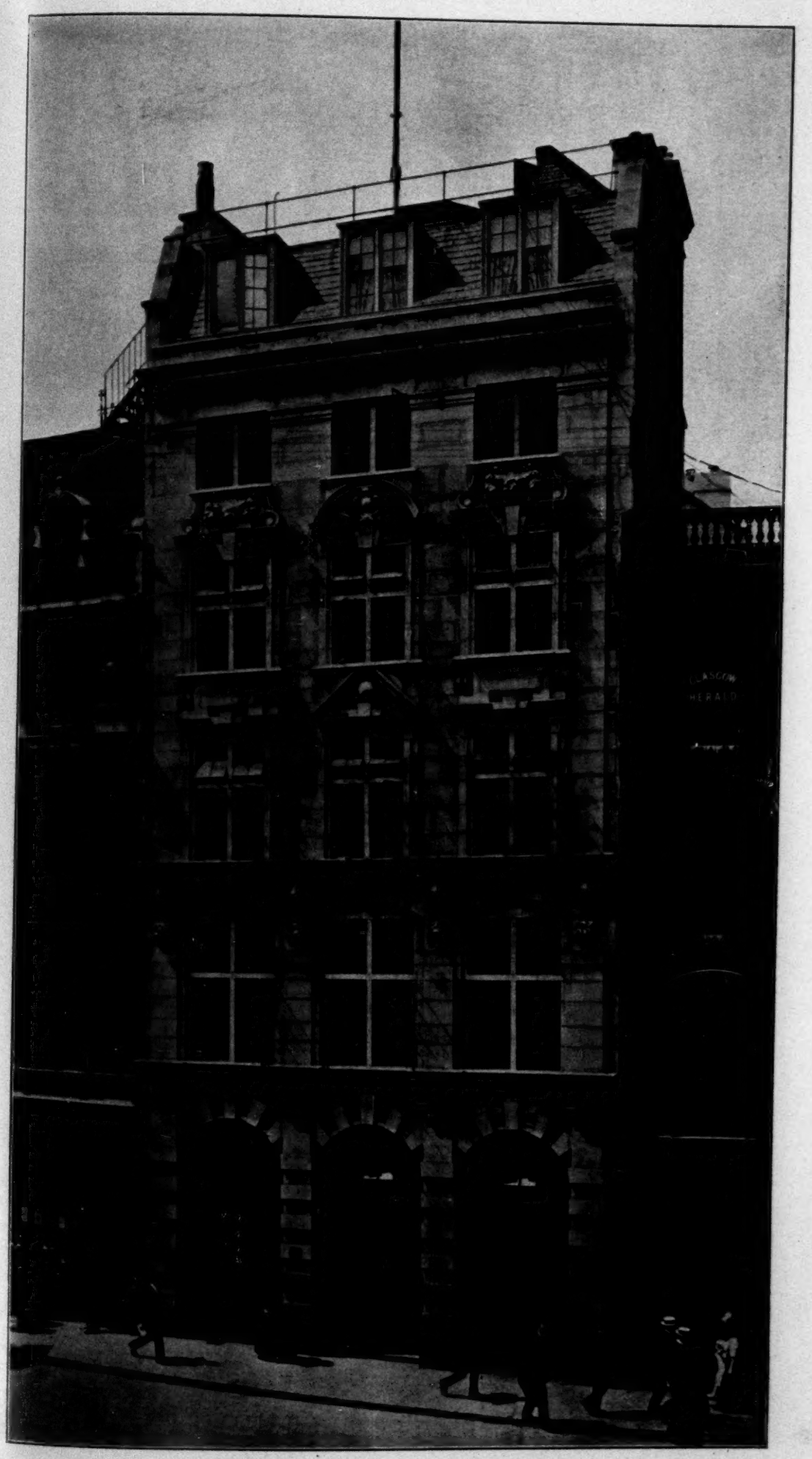
Photo by Anderson.

Sprague & Co., Ltd., Printers, 4 & 5 East Harding St., E.C.

THE ALCANTARA AND ALCAZAR BRIDGE, TOLEDO.

Sprague & Co., Ltd., Printers, 4 & 5 East Harding St., E.C.

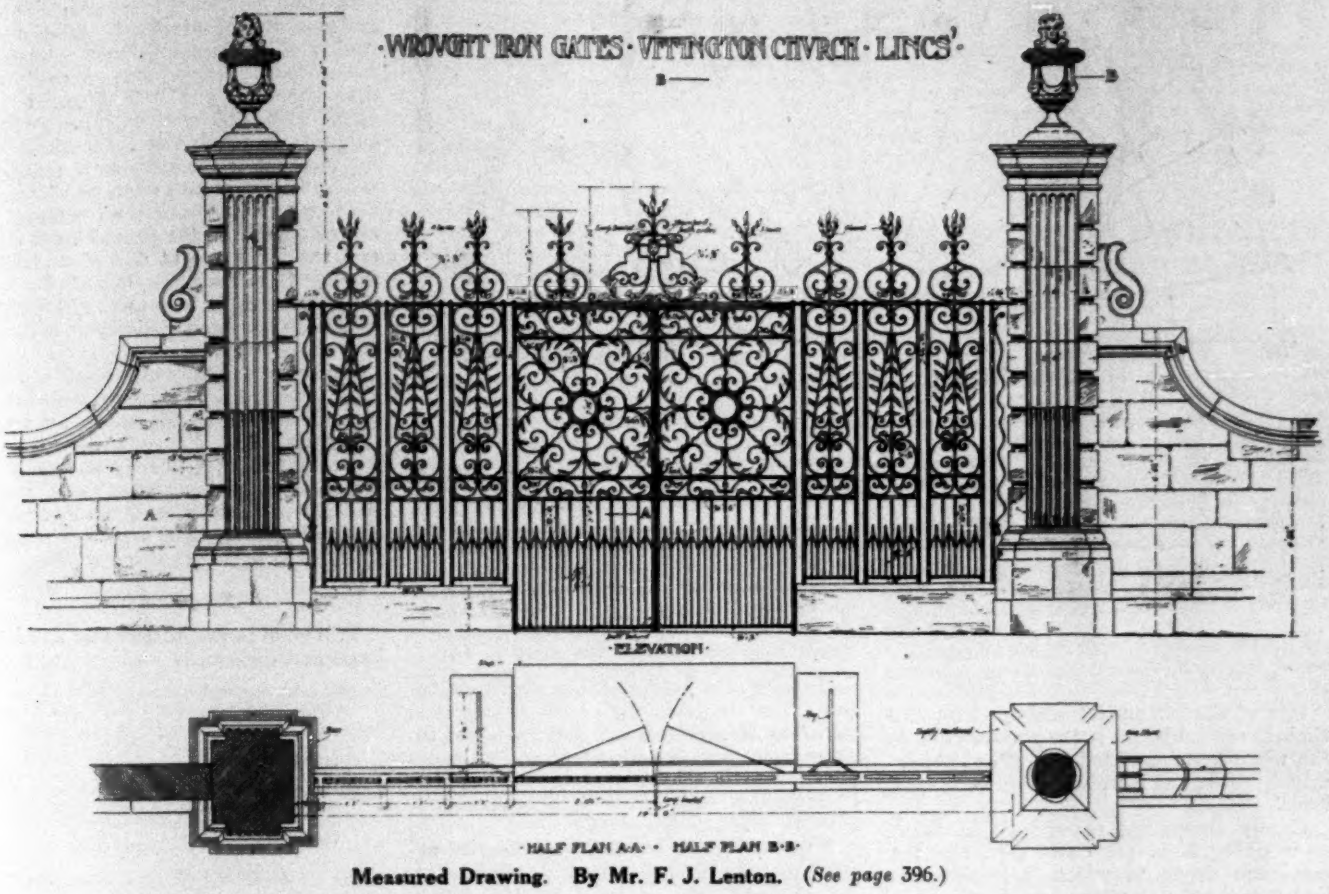
ADDITIONS TO THE BURLINGTON ARCADE, LONDON.—PROFESSOR BERESFORD PITE, F.R.I.B.A., ARCHITECT.



Sprague & Co., Ltd., Printers, 4 & 5 East Harding St., E.C.

55 AND 56 THREADNEEDLE STREET, E.C.—MR. H. CHATFEILD CLARKE, F.R.I.B.A., ARCHITECT.

MONTHLY REVIEW · *of* · CONSTRUCTION.



Measured Drawing. By Mr. F. J. Lenton. (*See page* 396.)

TIMBER IN ROOF COVERINGS.

MODERN roofs constructed for industrial purposes frequently consist of a steel frame on which is placed a timber covering carrying the slates or other roofing material. Much diversity of practice exists in proportioning the purlins, common rafters, boarding, etc., forming this covering; and, as engineers frequently depart from the accepted standards of the older authorities in the arrangement of these parts, the following notes have been compiled with a view to putting this matter on a rational basis, and to enable the designer to readily ascertain suitable scantlings for all ordinary cases.

Timber Beams.

As in the majority of cases the timber employed is northern pine from Baltic or White Sea ports, the rules given are applicable to that material or other of similar strength. They may, however, be readily modified to suit other timber if required.

For convenience, loads are taken in pounds, spans in feet, breadth, depth, and deflection of beams in inches, and stress in pounds per square inch. The following is the notation employed:—

W = Total load in pounds.
w = Load per foot run in pounds.
F = Stress in pounds per square inch.
E = Modulus in pounds per square inch.
L = Span in feet.
l = Span in inches.
b = Breadth in inches.
d = Depth in inches.
Δ = Deflection in inches.

Published rules on which much building work has been based show that timber may be safely subjected to 1,200 lb. per square inch as a maximum stress in beams. Its modulus of elasticity may have any value between 1,000,000 lb. and 2,000,000 lb. per square inch; 1,500,000 lb. has been taken as a mean value.

As the usual bending moment and deflection formulæ, such as $M = \frac{Wl}{8}$, or $\Delta = \frac{5\ Wl}{384\ E\ I}$, do not immediately relate either load or deflection to scantling, the following table has been prepared, giving for the more usual conditions of loading, the stress on the beam, the maximum safe load, the deflection under a given load or stress, and the deflection with the maximum safe stress. All coefficients are reduced to their lowest terms and decimal coefficients are avoided, so as to make the formulæ readily available for cancelling or for solution on the slide rule. Formulæ for cantilevers have been included to make the table more useful for general reference.

TABLE I.—BEAMS OF NORTHERN PINE.

E = 1,500,000 lb. per square inch. $F_{max.}$ = 1,200 lb. per square inch.

Ends.	Load.	Stress.	Max. Load.	Deflection with given Load.	Deflection with given Stress.	Deflection with Max. Stress.
Both supported	Distributed ...	$F = \frac{9\ WL}{bd^2}$	$W_{max.} = \frac{400\ bd^2}{3\ L}$	$\Delta = \frac{9\ WL^3}{50{,}000\ bd^3}$	$\Delta = \frac{FL^2}{50{,}000\ d}$	$\Delta_{max.} = \frac{3\ L^2}{125\ d}$
Both supported	Concentrated.	$F = \frac{18\ WL}{bd^2}$	$W_{max.} = \frac{200\ bd^2}{3\ L}$	$\Delta = \frac{9\ WL^3}{31{,}250\ bd^3}$	$\Delta = \frac{FL^2}{62{,}500\ d}$	$\Delta_{max.} = \frac{12\ L^2}{625\ d}$
One fixed, one free	Distributed ...	$F = \frac{36\ WL}{bd^2}$	$W_{max.} = \frac{100\ bd^2}{3\ L}$	$\Delta = \frac{27\ WL^3}{15{,}625\ bd^3}$	$\Delta = \frac{3\ FL^2}{62{,}500\ d}$	$\Delta_{max.} = \frac{36\ L^2}{625\ d}$
One fixed, one free	Concentrated.	$F = \frac{72\ WL}{bd^2}$	$W_{max.} = \frac{50\ bd^2}{3\ L}$	$\Delta = \frac{72\ WL^3}{15{,}625\ bd^3}$	$\Delta = \frac{FL^2}{15{,}625\ d}$	$\Delta_{max.} = \frac{48\ L^2}{625\ d}$

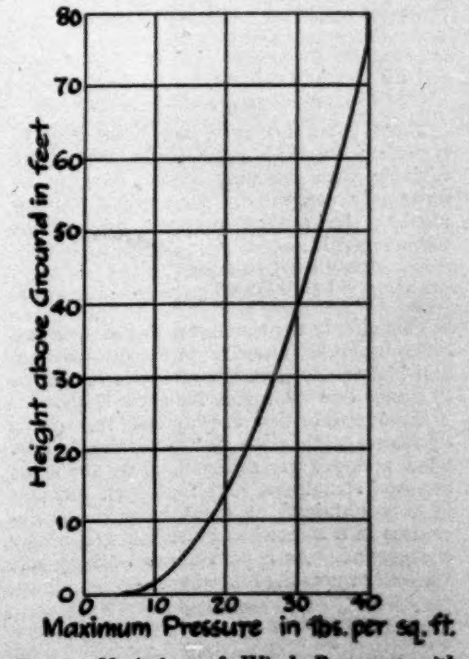


Fig. 1. Variation of Wind Pressure with Height.

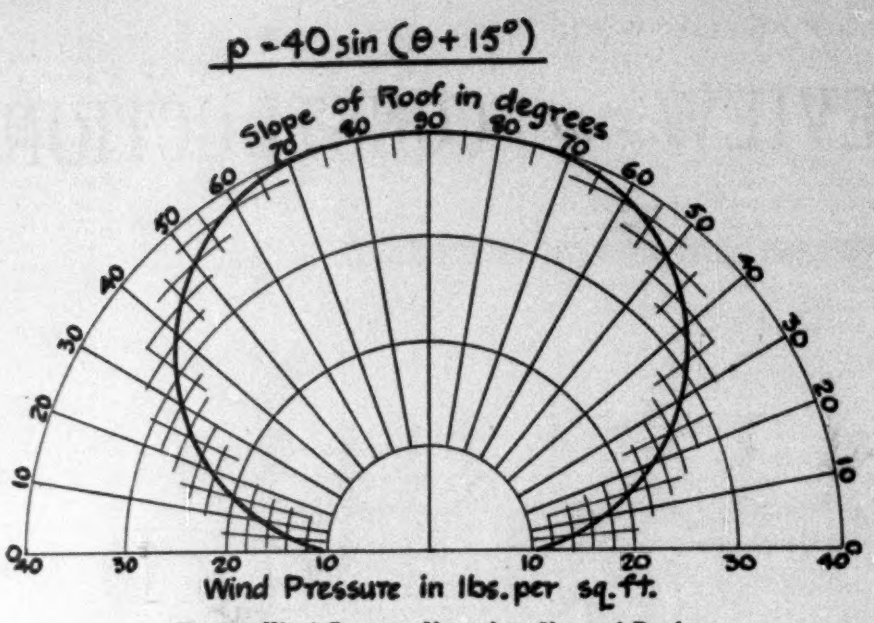


Fig. 2. Wind Pressure Normal to Slope of Roof.

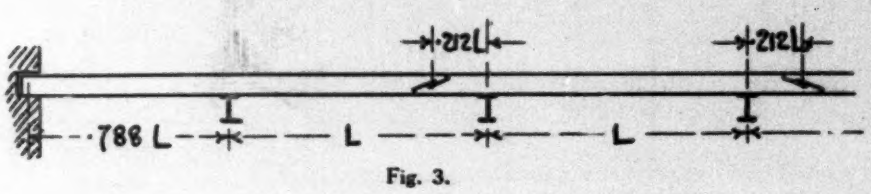


Fig. 3.

Wind Pressures and Snow Loads.

One of the principal loads to which roof timbers are subjected is the pressure due to the wind, and associated with it and closely interdependent on it we should consider snow loads.

Closely compacted snow may be taken as weighing 5 lb. per cubic foot, and the maximum depth to which it is likely to lie on roofs of flat pitch may be taken as 2 ft. in these latitudes. On steep pitches less snow will lodge, and it may be taken for granted that a heavy snow load and a high wind pressure will not occur at the same time, as the high wind would dislodge the snow.

Of the rules for determining the pressure of the wind normal to the slope of a roof, the pressure on a vertical plane being given, the best known are those of Duchemin and Langley, and Unwin (based on Hutton's experiments).

Let P = Pressure in pounds per square foot on a surface normal to a horizontal wind.
p = Pressure in pounds per square foot normal to the roof.
θ = The angle of the roof makes with the horizontal.

Then by Duchemin and Langley's rule—

$$p = P\frac{2\sin\theta}{1+\sin^2\theta} \quad . \quad . \quad . \quad . \quad . \quad (1)$$

and by Unwin's rule—

$$p = P\sin\theta\,1{\cdot}84\cos\theta - 1 \quad . \quad . \quad . \quad . \quad (2)$$

These rules, however, are both open to exception in that snow loads, which are variable with different angles, have to be separately computed. As tending to simplicity, the author proposes to use the following rule :—

$$\left.\begin{array}{l} p = P\sin(\theta+15°), \text{ for values of } \theta \text{ up to } 75°, \text{ and} \\ p = P, \text{ for values of } \theta \text{ above } 75° \end{array}\right\} \quad . \quad . \quad . \quad (3)$$

This closely approximates to the pressures given by Rules (1) and (2) at the intermediate and higher angles, while at the lower angles it makes due allowance for snow loads.

Most authorities are agreed that it is unnecessary to allow for more than 40 lb. wind pressure per square foot on the most exposed structures, and that such pressure is only obtained at great height, and decreases in a somewhat indefinite way nearer the ground. As a convenient working rule the author uses the following :—

$$\left.\begin{array}{l} P = 4\sqrt{H}+5, \text{ for heights up to } 76{\cdot}56 \text{ ft. above the ground, and} \\ P = 40 \text{ lb. per square foot above that level} \end{array}\right\} \quad . \quad . \quad . \quad (4)$$

H being the height of the structure in feet. The diagram, Fig. 1, illustrates this variation of pressure, and will be found to agree fairly with the figures given by Goodman for wind velocities at various heights. ("Mechanics Applied to Engineering." Seventh edition. Page 503.)

A useful variation of the usual diagram of wind pressure normal to slope of roof, using the author's rule, is given in Fig. 2, in which the ordinates for a 40-lb. wind are set out radially at the angles corresponding to the roof slopes. If this is copied on tracing cloth it may be applied directly to any roof drawing, and the pressure to be allowed for may be read off without calculation.

Roof Coverings.

Table II. gives approximately the weight in pounds per foot super, and the limits of slope for the more usual roof coverings. Of these weights the component normal to the slope alone causes bending moment on the roof timbers, hence in calculations for scantlings, instead of the weight given in the fourth column, we use :—

$$\left.\begin{array}{l} \text{Loading normal to slope, excluding wind} \end{array}\right\} = w\cos\theta \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (5)$$

$$\left.\begin{array}{l} \text{Loading normal to slope, and including wind} \end{array}\right\} = w\cos\theta + 40\sin(\theta+15°) \quad . \quad (6)$$

The maximum values of (5) and (6) within the limits of slope laid down are included in Table II. to the nearest pound per foot super.

We have also to allow for the occasional presence of workmen on the roof to effect repairs. As an approximation this will be considered equivalent to a concentrated load of 150 lb. applied anywhere, no allowance being made for reduction of bending moment due to slope of roof. On roof boarding it may be assumed that, owing to the intervening roof covering, *e.g.*, slates and battens, or zinc, or owing to tongues on the boards themselves, this load is carried by a width of 18 in. In the case of boarding or common rafters, to prevent damage to the roof covering, the added deflection due to this occasional load should be limited to $\frac{1}{4}$ in.

Spans should always be taken between centres of bearings, no allowance being made for continuity, since joints are usually made over supports, and it is difficult to avoid pieces extending over not more than three supports, in which case the maximum bending moment is the same as in a single free span. The only case where an allowance for continuity is justifiable is where the end bays are made ·788 of the general length of bays and the joints are at ·212 of the length of the bay from the supports, as in Fig. 3. As this arrangement is unusual and special, no allowance has been made for it in the rules given hereunder.

Unless specifically described as finished sizes, an allowance must be made from the quoted scantlings of timber for sawcuts, shrinkage, etc. The author has taken unwrought timber to be $\frac{1}{16}$ in. less in each direction than its nominal size, boarding wrought on one side, $\frac{1}{8}$ in. less than its nominal thickness, and scantlings wrought all over, $\frac{3}{16}$ in. less than nominal size.

Roof Boarding.

This must be proportioned for the following loads and deflections :—

Condition 1.—A distributed load of 43 lb. per foot super., including wind. (Table II., *f*.) As this requires a less thickness $\left(d = \frac{L}{6{\cdot}1}\right)$ than Condition 3, it may be ignored.

Condition 2.—A distributed load of 12 lb. per foot super., excluding wind (Table II., *f*), and a central load of 150 lb. on 18 in. width. When L is less than 3·32 ft.

$$d = \frac{\sqrt{L^3 + 1{\cdot}7\,L}}{11{\cdot}55} \quad . \quad . \quad . \quad . \quad . \quad (7)$$

Condition 3.—Deflection $\frac{1}{4}$ in., with central load of 150 lb. on 18 in. width. When L is greater than 3·32 ft.,

$$d = \frac{L}{4{\cdot}7} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (8)$$

Table III., giving the thickness of boarding for any span, is based on the above. Where boarding is laid diagonally, the span should be measured along the diagonal.

TABLE III.—ROOF BOARDING.

Actual Thickness. Inches.	Nominal Thickness. Sawn.	Nominal Thickness. Wrought one side.	Maximum Span. Ft. In.
$\frac{3}{8}$	—	$\frac{1}{4}$	2 8½
$\frac{7}{16}$	$\frac{1}{2}$	—	3 2
$\frac{1}{2}$	—	$\frac{3}{8}$	3 6½
$\frac{9}{16}$	$\frac{5}{8}$	—	3 10
$\frac{5}{8}$	—	$\frac{1}{2}$	4 1½
$\frac{11}{16}$	$\frac{3}{4}$	—	4 5
$\frac{3}{4}$	—	1	4 8½
$\frac{13}{16}$	1	—	5 0
$\frac{7}{8}$	—	$1\frac{1}{4}$	5 3½
$\frac{15}{16}$	$1\frac{1}{4}$	—	5 7
1	—	$1\frac{1}{4}$	5 10½
$1\frac{1}{16}$	$1\frac{1}{4}$	—	6 2
$1\frac{1}{8}$	—	—	6 5½
$1\frac{3}{16}$	—	$1\frac{1}{2}$	6 9
$1\frac{1}{4}$	$1\frac{1}{2}$	—	7 0½

TABLE II.—ROOF COVERINGS.

Materials.	Slope from	Slope to	Weight in pounds per foot super.	Loading Normal to Slope, excluding wind.	Loading Normal to Slope, including wind.
a. Corrugated-iron on purlins	5°	30°	5	5	33
b. Zinc on boarding	0°	30°	5	5	33
c. Zinc and purlins	0°	30°	7½	8	35
d. Lead on boarding	Flats and gutters only		10	10	30
e. Lead and purlins	Flats and gutters only		12½	13	33
f. Slates on boarding	20°	45°	12	12	43
g. Slates and purlins	20°	45°	15	14	45
h. Tiles on battens and rafters	35°	70°	17½	15	46
i. Tiles and purlins	30°	70°	20	17	48

Common Rafters.

Nominal width 2 in., spaced 1 ft. apart, *i.e.*, 1 ft. 2 in. centres.

Condition 1.—A distributed load of 46 lb. per foot super., including wind. (Table II., *h*.)
Condition 2.—A distributed load of 15 lb. per foot super., excluding wind (Table II., *h*), and a central load of 150 lb. on one rafter.
Condition 3.—Deflection $\frac{1}{4}$ in., with central load of 150 lb. on one rafter.

The formulæ for the nominal depth to meet each condition are summarised below:—

CONDITION 1.

Minimum nominal depth of rafter of span L when		
Finished to size.	Sawn.	Wrought all over.
$\frac{L}{2{\cdot}23}$	$\frac{L}{2{\cdot}19} + \frac{3}{16}''$	$\frac{L}{2{\cdot}12} + \frac{3}{16}''$ . . (9)

CONDITION 2.

$$\frac{\sqrt{L^2 + 17{\cdot}14\,L}}{3{\cdot}91} \qquad \frac{\sqrt{L^2 + 17{\cdot}14\,L}}{3{\cdot}85} + \frac{3}{16}'' \qquad \frac{\sqrt{L^2 + 17{\cdot}14L}}{3{\cdot}72} + \frac{3}{16}''$$

. . . . . (10)

CONDITION 3.

$$\frac{L}{2{\cdot}26} \qquad \frac{L}{2{\cdot}24} + \frac{1}{16}'' \qquad \frac{L}{2{\cdot}19} + \frac{1}{16}''$$

Table IV. is based on the above. The maximum spans are determined by the second condition where marked by an asterisk, and in all other cases by the first.

TABLE IV.—COMMON RAFTERS.

Spaced at 1-ft. 2-in. centres.

Nominal Dimensions.	Maximum Span.		
	Finished to Size.	Sawn.	Wrought all Over.
In. In.	Ft. In.	Ft. In.	Ft. In.
2½ × 2	*4 5	*4 1½	*3 8
3 × 2	*5 11½	*5 7½	*4 11½
3½ × 2	*7 7	*7 2½	*6 5
4 × 2	8 11	8 7½	*8 0
4½ × 2	10 0½	9 8½	9 1½
5 × 2	11 1½	10 9½	10 2½
5½ × 2	12 3	11 11	11 3
6 × 2	13 4½	13 0	12 4

Purlins.

It will be seen from Table II. that there are three principal cases to be considered:—

a. Lead or zinc flats.
b. Light roofs of corrugated-iron or zinc.
c. Slated or tiled roofs.

The slight differences in weight between the coverings classified together are not of sufficient importance to require separate formulæ. With purlins the deflection condition may be omitted, since, in relation to the comparatively large distance between the purlins, the deflection under the maximum stress is too small to injuriously affect the roof covering.

a. Lead or Zinc Flats.

Condition 1.—A distributed load of 23 lb. per foot super., including wind or snow. (Table II., *e*.)

$$bd^2 = \frac{BL^2}{5{\cdot}8} \quad . . . . . (11)$$

Condition 2.—A distributed load of 13 lb. per foot super., excluding wind or snow (Table II., *e*), and a central load of 150 lb. on purlin.

$$bd^2 = \frac{BL^2 + 23{\cdot}05\,L}{10{\cdot}25} \quad . . . . (12)$$

When BL is more than 30 ft. super. use equation (11), but when less use equation (12).

b. Corrugated-Iron or Zinc Roofs.

Condition 1.—A distributed load of 35 lb. per foot super., including wind. (Table II., *c*.)

$$bd^2 = \frac{BL^2}{3{\cdot}81} \quad . . . . . (13)$$

Condition 2.—A distributed load of 8 lb. per foot super., excluding wind (Table II., *c*), and a central load of 150 lb. on purlin.

$$bd^2 = \frac{BL^2 + 37{\cdot}5\,L}{10{\cdot}67} \quad . . . (14)$$

When BL is more than 11·1 ft. super. use equation (13), but when less use equation (14).

c. Slated or Tiled Roofs.

Condition 1.—A distributed load of 48 lb. per foot super., including wind. (Table II., *i*.)

$$bd^2 = \frac{BL^2}{2{\cdot}78} \quad . . . . . (15)$$

Condition 2.—A distributed load of 17 lb. per foot super., excluding wind (Table II., *i*), and a central load of 150 lb. on purlin.

$$bd^2 = \frac{BL^2 + 17{\cdot}64\,L}{7{\cdot}85} \quad . . . . (16)$$

When BL is more than 9·7 ft. super., use equation 15), but when less use equation (16).

COLOURING OF WOOD TO INCREASE ITS INDUSTRIAL VALUE.

H. WISTICENUS has investigated the action of gases and vapours in the industrial colouring of various woods with the following interesting results. He finds that such improvement of the colour and of the artistic effects consequent thereupon is entirely distinct from those produced by mere "daubing" of the surface. Organic colouring matters dissolved in alcohol penetrate wood deepest, but are not the best colours; colours dissolved in water only penetrate a fraction of a millimetre below the surface of wood in the direction of the length of the fibres, while turpentine and wax colours only affect the surface. In order to stain wood throughout its mass, apparatus similar to that used for impregnating wood with tar, etc., must be employed. Although tar gives a not unpleasant brown colour to wood, it is not a true colouring material. On the other hand, gases, and especially ammonia, have the power of rapidly producing the deepest colours in wood. Only small amounts of gases or vapours are required to colour the whole mass of the wood. The change of colour is really produced by the action of the gases on those unstable and easily decomposable constituents of the sap and woody substance, which are readily separated from the resistant cellulose fibres; tannins, and less resistant carbohydrates, such as sugars, gums, etc., are turned to a dark colour by alkalis, ammonia, and superheated steam, or are decomposed with the formation of brown "humus" bodies. Fibres are easily penetrated by gases and vapours, and the colouring effects are heightened by such factors as high temperature, light, moisture, oxidising agents, etc.

A characteristic of these processes is the throwing into bold relief of dull, matt tones of colour, which produce the impression of colour from age, and, in fact, the object of these processes is to hasten those natural changes which occur in the ageing of wood. Cut wood turns yellow or brown naturally under the influence of the oxygen in the air, light, warmth, and moisture, and the coloration is also affected by dust (especially particles of iron), fungi, bacteria, and the action of the ultra-violet rays of light and heat. The side exposed to constant rain and snow becomes grey, the side exposed to the sun according to its age becomes more or less brown, and the freely-exposed ends of beams of very old houses become quite charred. The brown colour is a typical superficial colour, which is easily removed by moist ammonia fumes, and the surface then consists of pure white cellulose fibres, which give no lignin reactions. In low-lying country wood never acquires the exquisite brown observed in the Alpine district.

Wood exposed freely to air and protected from moisture acquires a superficial grey colour, probably formed by the action of traces of iron on the sap materials, and entirely distinct from the grey colour due to age which penetrates the interior of the wood. Among artificial processes of colouring wood the comparatively new process of "fuming" with ammonia has only been applied to woods rich in tannin materials in order to produce the greyish-brown of old oak. The wooden articles are enclosed in a vessel filled with air and ammonia fumes for two or three days, and are coloured to a depth of from 2 mm. to 3 mm. = ·078 in. to ·118 in., which is much deeper than would be effected by liquid colours. In cases where tannin material must be added to the wood, a 5 to 10 per cent. hot solution of pyrogallic acid is used. Solutions of salts which can be coloured by ammonia or sulphuretted hydrogen are also employed, but only the surface is coloured by them. Even for oak, the "ammonia fuming" process is limited by the varying amounts of tannin substance present, by the fact that only made articles can be fumed if a uniform appearance is to be obtained, and by the want of resistance of the colour to water. The steaming of wood is chiefly used in order to bend the wood, but it also produces a uniform brown colour throughout the mass, and with certain kinds of wood colouring by a gas process can often be combined with drying by means of superheated steam.

Another artificial process of colouring wood brown and imparting to it the appearance of age consists in embedding planks and blocks in trenches in the ground and covering them with loose earth or coal cinders. The loose soil is wetted with rain or by watering, and the draining off of the water maintains a moist atmosphere in the soil. The colouring is brought about by the soil gases—water vapour, air, ammonia, carbonic acid, and possibly hydrogen peroxide. Soils with a low content of humus are suitable, and the ammonia may be increased by adding ammonia-producing substances to them. The process is essentially different from the colouring of wood by laying it in mud, slime, or soil soaked with manure, as in the case of "sub-fossil" woods found in bogs.

REINFORCED CONCRETE FLOORING BUILT WITHOUT MOULDS.

WE already have at hand in this country several methods of constructing reinforced concrete floors without the employment of the customary moulds and centring. All of these have been described and illustrated in our columns at different times.

The system to which we now direct attention is one employed at the University of Wisconsin, where it has been found practical, economical, and effective. It embodies an arrangement of narrow beams spaced about 3 ft. apart, centre to centre, and braced by transverse beams of equal dimensions spaced 6 ft. 6 in. apart, with girders of similar construction at intervals (see Fig. 1).

The beams are moulded in the spaces between a temporary staging formed of wooden boxes with sloping sides and ends as shown in Fig. 2, laid upon a system of supporting planks held in place by timber struts.

Concrete and reinforcement are placed in the intervals to form the beams, and the connecting floor slab is spread over the beams and the top of the boxes, this part being reinforced with wire netting and finished by a granolithic surface.

The reinforcement of the beams as represented in Fig. 3 consists of round bars enclosed in stirrups of U-form, several stirrups being bent from one rod to form a connected series. The bars are only used in tension, but are bent up over the supports in the case of joists and bridging joists, while in the girders straight bars are employed with short bars for contra-flexure in the upper part near the supports. Calculations for the reinforcement were made by the Dean of the Engineering Department of the University.

Mr. Arthur Peabody, Supervising Architect to the University of Wisconsin, states that during the past two years spans of from 12 ft. to 26 ft. have been successfully moulded, and that some floors of 28 ft. span are being made this year. These necessitate beams measuring 8 in. wide at the bottom, 10 in. wide at the top, and 14 in. deep. The increased width of the beams at the top adds to the crushing resistance of the construction, and the narrower bottom where tension in the concrete is neglected is sufficient and economical.

The calculated strength of the floor is entirely in the beams, no account being taken of the slab, and none of the bridging joists. The value of these two elements is considerable, and we see no reason against taking them into account, as will certainly be done if the system comes to be developed commercially.

By providing enough boxes for one or two floors an entire building, and many other afterwards, can be constructed with a minimum expenditure for plant. If preferred, however, sufficient boxes can be made for all the floors of a given building, and the floor slabs formed after the whole of the beams have been moulded.

The intervals between the boxes can easily be varied to make the beams of any required width, and the depth can be increased by placing troughs on the supporting planks or by increasing the thickness of the floor slab.

As first made at the University, the timber boxes were of pine sheathed with yellow pine floor-boards carefully put together and finished smooth. The cost per box was about 10s. each, and the boxes were used fifteen times without a great percentage of loss. They were then covered with sheet-iron at a cost of about 6s. each, rendering them suitable for use fifteen times more.

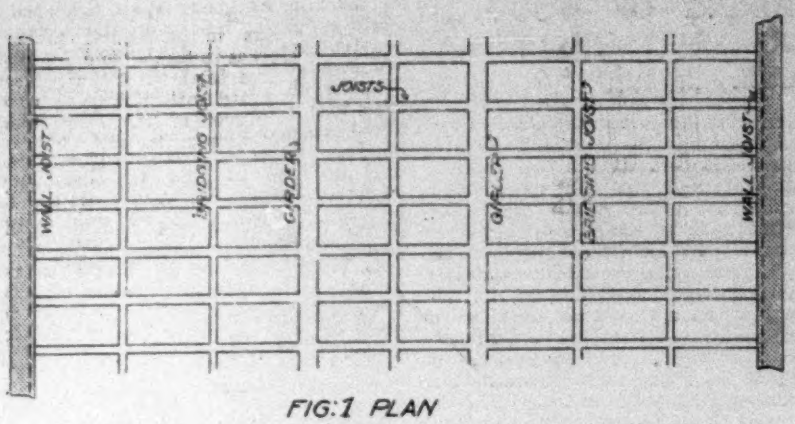


FIG:1 PLAN

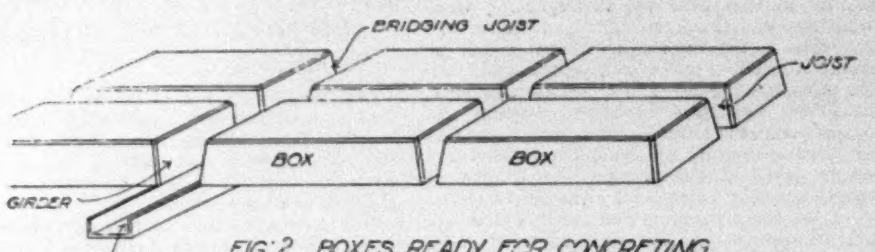


FIG:2 BOXES READY FOR CONCRETING

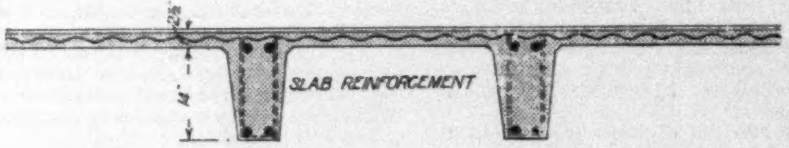


FIG:3 SECTION OF COMPLETE FLOOR

Reinforced Concrete Flooring built without Moulds.

Experience shows that it is economical to sheath the boxes with sheet-iron in the first instance, thus saving the cost of finishing the wood smoothly, and the metal surface slips away from the concrete more readily than timber. Moreover it is free from the disadvantage of absorbing moisture from the wet concrete, and obviates swelling of the wood.

The life of the boxes depends very much on the treatment they receive. If adequately protected with sheet-iron along the lower edges as well as on top and on the sides and ends, there is no reason why they should not last for a long time.

In the subjoined table we give the cost of floor construction in the Mining Laboratory at the University of Wisconsin. The floors in question covered about 4,500 sq. ft., and the superimposed loading was 200 lb. per square foot.

	Per sq. ft. d.
Concrete (limestone aggregate)	5·27
Reinforcement	3·93
Timber for supports	3·30
Timber boxes, one-fifteenth original cost	0·36
Erecting supports and boxes	2·77
Placing reinforcement and concreting	2·22
Removing supports and boxes	0·55
Total cost	18·40

WROUGHT-IRON GATES, UFFINGTON CHURCH (p. 393).

THESE old gates form the entrance to the churchyard of Uffington, a picturesque little "stone and thatch" village about 2 miles from Stamford. They are beautifully "set" at the end of a long paved path, which, with its grass border, bushes, and overhanging trees, has the appearance almost of an avenue leading up to and culminated by the church, with its fine spire; the vista so obtained through the wrought ironwork is delightful.

As is often the case, a great deal of the more delicate work—leaves, etc.—has rusted off, but enough remains to restore the whole.

Unfortunately, nothing is known of the history of the gates, but it is possible that the lady and gentleman whose distinctly Georgian features are graven on the torus were the donors.

On the opposite side of the road a fine pair of modern gates and piers, echoing these in many respects, give an equally entrancing view of the beautifully-kept Hall gardens, their blaze of colour contrasting pleasingly with the cool green of the churchyard.

CONSTRUCTION NOTES.

Comparison of Retaining Wall Designs. THE important economy that can be effected by the adoption of reinforced concrete in place of masonry or mass concrete in the construction of retaining walls has been sufficiently illustrated by numerous examples described in our columns on various occasions. In the present note we compare the cost of three types of design, one a plain concrete wall with reinforcement in the footing and at the junction of the footing and wall proper, and the other two representing commonly adopted forms of construction.

All three walls are practically of the same overall dimensions and suitable for equal load conditions. For the purpose of showing the extent by which the sectional area of concrete may be reduced by the aid of efficient reinforcement from a given thickness at the top of the wall, the uniform dimension of 18 in. has been adopted in each case, but it should be pointed out that considerable further saving might easily be effected in the cross-sectional area of concrete.

The subjoined table gives the comparative cost per lineal foot of the three designs as represented in Figs. 1 to 3:—

Materials and Unit Cost (including labour).	Type of Design and Cost per Foot Run.		
	Fig. 1.	Fig. 2.	Fig. 3.
	£ s. d.	£ s. d.	£ s. d.
Concrete at 24s. per cu. yd.:			
4·33 cu. yd.	5 4 0	—	—
2·95 cu. yd.	—	3 10 9	—
2·50 cu. yd.	—	—	3 2 2
Steel bars at 1½d. per lb.:			
40·8 lb.	0 4 3	—	—
148·0 lb.	—	0 15 5	—
151·0 lb.	—	—	0 15 9
Moulds at 5s. per sq. yd.:			
4·12 sq. yd.	1 0 7	1 0 7	—
6·4 sq. yd.	—	—	1 12 0
Total per foot run	6 8 10	5 6 9	5 9 11

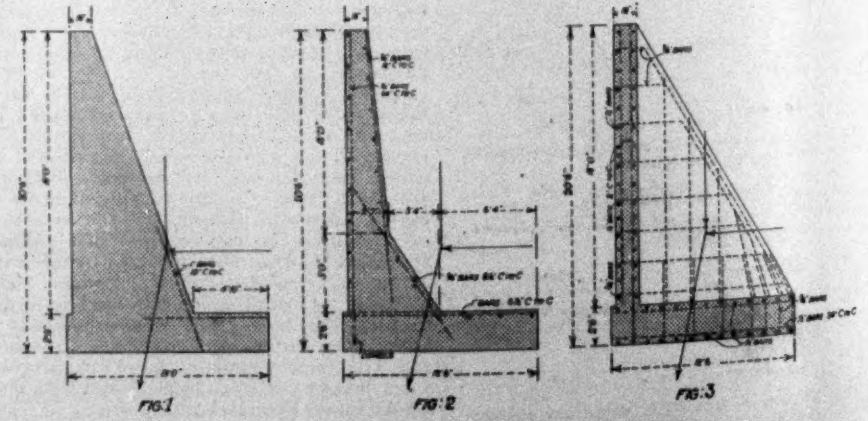
As the quantities of material are given for each type, the reader can substitute his own unit prices if desired, but these will not affect the comparison of cost.

Adhesion of Concrete and Steel. PROFESSOR BACH has recently made public the results of an investigation undertaken by him with the object of determining the resistance to longitudinal pulling-out of steel bars embedded in concrete for varied lengths of the surfaces in contact. Having pulled out bars of 0·79 in. diameter embedded in blocks of concrete for lengths ranging from 1·18 to 15·75 in., the author found that the axial adhesive resistance per square centimetre of surface in contact diminished uniformly as the length increased. For the dimensions of the bars examined, Professor Bach found that the relation which exists between the adhesive resistance ρ per square centimetre, and the dimensions l = length and d = diameter of the bars tested can be thus represented by the exponential function:—

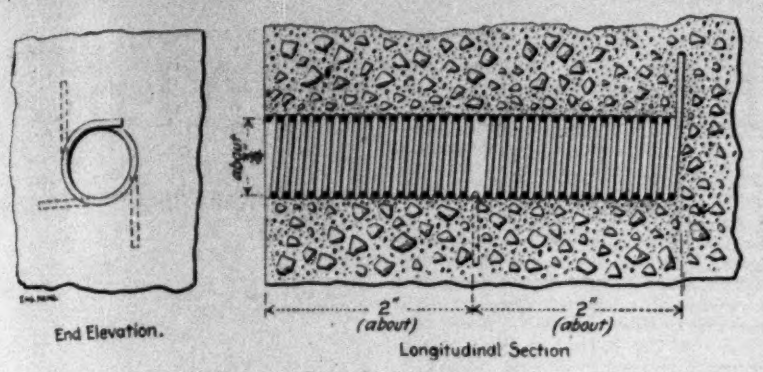
$$\rho = 160e - \left(0{\cdot}2 + 0{\cdot}4\sqrt[3]{\frac{l}{d}}\right)$$

where e = the base of Napierian logarithms. This formula appears to be applicable to bars up to 20 in. long.

New Process for Creosoting Timber. AT a demonstration of the Rüping system of timber preservation last month various kinds of wood in the form of poles, fencing, battens, boards, sleepers, and paving blocks were treated. After having been weighed and measured, the specimens were placed in a cylinder, subjected to the air-pressure of 50 lb. per square inch, and then the cylinder was filled with creosote, first under the same pressure and next under 80 lb. per square inch. After the timber had been taken out, the quantity of creosote absorbed was ascertained by weighing, and, various specimens having been cut across, it became evident that the oil had penetrated nearly to the centre. The process is said to be very economical, one special advantage being the cleanliness of the treated wood.



COMPARISON OF REINFORCED CONCRETE RETAINING WALLS



End Elevation. Longitudinal Section

Bolt Socket.
(From *Engineering News.*)

Simple Bolt Socket for Concrete Work.

FOR securing bolts in concrete buildings and structures the device recently patented by Mr. David Craig, of Boston, U.S.A., is one that should be found very useful. As shown in the accompanying drawing, it consists of a helical coil of wire, the coils spaced so as to match the thread of an ordinary coach bolt, and the ends of the coil turned out tangentially for anchorage. To place the socket in position, it is fitted on a screwed bolt, of the size to be used afterwards, passed through the side of the mould, and embedded when concrete is poured in. The bolt is afterwards withdrawn, leaving a screwed socket. The device is quite suitable for attaching hangers of all kinds to concrete and reinforced concrete structures, and has been successfully employed in construction work on the Boston Elevated Railway.

Sag of 80 ft. Reinforced Concrete Beams.

REFERRING to the beams of 80 ft. span described in our issue of August 11 last, it is interesting to note that the sag of these members under their own dead weight and that of the connecting roof slab averages only ¼ in., the maximum deflection in one beam being ⅜ in. As these two measurements correspond to $\frac{1}{3840}$ and $\frac{1}{2560}$ the span, respectively, they are clearly indicative of sound design and good construction.

Effect of Lightning on Concrete.

A WELL-KNOWN civil engineer in America has recently made public his personal experience of the behaviour of concrete under attack by lightning. He says that a reinforced concrete water-tank at his country residence was struck a short time ago without causing injury, the only effect having been to vitrify the texture of the concrete in places.

Influence of Transport on the Properties of Concrete.

A NOVEL industry lately originated in some German cities is the preparation and supply of ready-mixed mortar and concrete. These materials are prepared in special works and transported thence to building works in progress. There can be no doubt that the plan of mixing under expert supervision should be beneficial in itself; while, on the other hand, it is to be feared that the delay, inseparable from loading, transport, and delivery, may affect the setting of the mortar and concrete, and that the jolting of concrete on the way from the mixing works may cause segregation of the constituents. In order to obtain reliable data on the two points in question, tests have been conducted on a series of specimens of concrete, taken before and after transport. According to the results furnished by the tests, it appears that the transport of concrete actually increased the strength of the material by about 15 per cent., the increase being more noticeable in cases where aggregate with sharp edges had been employed. We are reluctant to accept this conclusion for general guidance, and besides, it is highly probable that in ordinary practice delays would occur in delivery, presenting considerable risk of inferior work.

Cheaper Railways.

MR. C. REGINALD ENOCK, F.R.G.S., in a paper read before the Society of Engineers, argued that the capabilities of the ordinary steam railway do not keep pace with the requirements of the times; that there are too many accidents; that travelling is too slow; the cost of construction too heavy; that freight and passenger rates are too high; labour insufficiently paid, and dividends less than they should be. He pointed out that the mountainous regions of the globe are still undeveloped, due to heavy cost of railway construction. He stated that the heavy cost of English railways is largely due to land purchase. He considered that radical changes in design and construction are now called for, in the interests of safety, rapidity, and economy. He urged that national experiments should be carried out on a specially-equipped site, in order to give greater scope to inventors and to evolve improvements; and suggested that inquiry might be made into the possibility of a combination of railway and aeroplane.

Cost of Industrial Buildings.

A USEFUL comparison given in a paper contributed by Mr. J. P. H. Perry to the National Association of Cement Users (U.S.A.) relates to the cost of reinforced concrete, protected steel-frame, and "mill construction" factory buildings. The figures quoted were furnished by the tenders for buildings erected in various parts of the United States. Neglecting "mill construction," which finds no exact counterpart in this country, Mr. Perry's data show that the cost of reinforced concrete ranges from 2·8 to 13 per cent. less than that of fire-protected steel, the exterior walls being assumed to be of equal value.

The author justly urges, however, that initial outlay is not the only consideration, and that owners should also take into account the fixed annual charges, including interest, insurance, depreciation, the effects of vibration, and sanitation. Some saving in the first two items can probably be effected by reinforced concrete, and as the depreciation of the same material is not more than about 0·5 per cent. per annum, maintenance charges ought to be considerably reduced, while they would be vastly less than in buildings where steelwork is exposed to the air.

Freedom from vibration is one of the chief points of superiority characterising reinforced concrete as compared with steel-frame construction, and on this count Mr. Perry estimates the saving in machinery repairs to be one well worth attention. Among hygienic advantages he places resistance to the attack of vermin, and increased facilities for the admission of light.

Taking all things into account, the author urges that it would pay owners to adopt reinforced concrete even if the initial cost of the building were higher than that of a protected steel structure, and that the advantages of reinforced concrete construction are still more pronounced when compared with buildings erected in accordance with ordinary methods. The question is one quite deserving inquiry.

Mediæval Reinforced Concrete in Paris.

A STRANGE discovery lately made in the walls of the old palace of the Louvre shows that reinforced concrete was by no means unknown in Paris as far back as the XVIth century, when the rebuilding of the Louvre was undertaken by that industrious builder, Francis I. The *Figaro* states that when executing works in connexion with the application of a modern lift the workmen employed found it necessary to cut through some of the old walls, which were apparently of dressed masonry. But, to the surprise of the contractors, it was found that the stone was nothing but the outer shell of construction largely composed of a kind of reinforced concrete. In view of the generally entertained belief that this is an essentially modern variety of structural material, the proof of its employment between 300 and 400 years ago is distinctly interesting. Our contemporary states that some one with archæological tastes has taken the trouble to search the archives for records left by the architects of the epoch in question, with the result that no mention was found of anything but dressed stone for use in the walls. It seems, therefore, that the original contractors, with more wisdom than honesty, decided to make sure of reaping the benefit attending the adoption of reinforced concrete as a substitute for stone masonry.

Partition Walls in Berlin.

FROM a report by the United States Consul-General at Berlin it appears that most of the inner partition walls used in buildings in that city consist of a heavy iron wire screen, on either side of which are layers of coke-ash mortar. The walls are apt to get out of plumb, and will not hold nails satisfactorily, and, as in making the mortar cattle hair, jute, and hemp refuse are used, it sometimes disintegrates, causing the wall to crumble and sections to fall out. A good metal partition wall should, therefore, says the Consul-General, find a market in Germany, provided that it was not too thick and that the cost was not very much greater than that of the ordinary wall. Economy of space is looked for by the German builder. The authorities require that all outside and supporting walls shall have a thickness of at least 36 cm. (14·173 in.), and hence partition walls are generally limited in thickness to 10 cm. (3·937 in.), as they are not required to support great weights. The coke-ash walls cost about 3·20 marks per square metre (about 2s. 8d. per square yard), but builders would pay more for a wall of satisfactory construction.—*The Engineer.*

Danger of Iron Bolts and Ties in Masonry.

IN most cases where iron has been leaded into stone cracks have sooner or later appeared owing to increased bulk of the metal by oxidation. The only way of obviating such cracks is to make a perfectly tight joint between the two metals. As lead does not in any way adhere to iron tightness can only be secured by efficient caulking. This can only be accomplished where (*a*) the section of the iron bar is circular, (*b*) the hole in the stone is of the same form, (*c*) iron fixing wedges are eliminated, (*d*) there are no projections on the surface of the bar, and (*e*) the lead is sufficiently ductile.

THE BUILDING TRADE.

THE APPOINTMENT OF AN ARBITRATOR.

OF the building cases which from time to time come before the courts for decision a considerable number involve the consideration of an arbitration clause. For good or ill, parties to these agreements depend upon arbitration for the settlement of disputes, and while the appointment of an arbitrator is often made in the contract itself, it often becomes necessary for the builder to consider who had best arbitrate for him. It may be, of course, that all questions in dispute are left to the architect, but it is more usual to provide in the agreement that disputes shall be determined by arbitration in accordance with the terms of the Arbitration Act.

While an unprejudiced person should always be chosen, the parties are at liberty to choose whom they will, or to name some indefinite person, such as a gentleman nominated by the President of the Institute of British Architects. The mere fact that the arbitrator had some bias at the time of his election would not, if the fact were known to both parties, be sufficient to avoid his appointment. Where, however, it turns out that, unknown to one or both of the parties who submit to be bound by his decision, there are some circumstances in the situation of the arbitrator which tend to produce a bias in his mind, he is an improper person to act as an arbitrator. Even in the common case where either party appoints an arbitrator, who are empowered to appoint an umpire in case they cannot agree, the arbitrators so appointed should be without bias. In a case decided in 1845 the appointment of the surveyor of a railway company to act as their arbitrator in a dispute was held to be objectionable, and in a much later case the court threatened to revoke a submission where an insurance company appointed their own manager to act as their arbitrator.

In a Scotch case, a firm of contractors who had undertaken to build a public building agreed with the Town Council that a particular gentleman should act as arbitrator in case of dispute. This gentleman subsequently became elected "Dean of Guild," and thereby *ex officio* a Town Councillor. It was held that this disqualified him from acting as arbitrator (Edinburgh Magistrates *v.* Lownie, 1903, 5 F. 711).

The case of Belcher *v.* Roedean School, 1901, 85 L. T. 469, shows that the court will be reluctant to revoke a submission to arbitration on the ground of interest. In that case a contract provided that all disputes and differences arising on a building contract were referred to the decision of the architect appointed by the building owners. The builders issued a writ against the architect for damages for fraud and misrepresentation, and took out a summons to revoke the submission to arbitration. The architect declined to admit the charges made against him. It was held that an application to revoke the submission was one to be granted with great caution, and that the submission ought not to be revoked. If the clause providing for arbitration mentions no other mode of reference, it is to a single arbitrator; but the parties can agree that there shall be two arbitrators, and if so the two arbitrators may appoint an umpire within the period during which they have the power to make an award. In the case (*a*) where the submission provides for a reference to a single arbitrator, and all the parties do not, after differences have arisen, concur in the appointment of an arbitrator; or (*b*) if an appointed arbitrator refuses to act, or is incapable of acting, or dies, and the submission does not show that it was intended that the vacancy should not be supplied, and the parties do not supply the vacancy, any party may serve the other parties with a written notice to appoint an arbitrator. If the appointment is not made within the proper time, the court may make the appointment. A reference, as we have seen, is frequently made to two arbitrators, one to be appointed by each party. Provision is made by the Arbitration Act for the failure of one party to make the appointment. If one party to the arbitration were to refuse to make any appointment, the arbitrator selected by the other might sit as sole arbitrator and decide the matters in dispute, subject, however, to a power reserved to the court to set aside any appointment by the other. If the person chosen to decide matters in dispute refuses to act or dies, it is competent for one party to call upon the other to appoint a new arbitrator. If he refuse to do this, the court may then make the appointment.

It is well to make a very distinct arrangement about fees before the arbitrator enters upon his duties. To estimate the exact amount payable is, of course, a difficult task, inasmuch as there is no telling for how long the hearing will last. The "retainer" and a daily "refresher" can, however, be fixed without any difficulty. It is to be borne in mind that an arbitrator is entitled to keep back his award until his fees are paid, and this is a method of compulsion not infrequently resorted to. The usual practice, therefore, is for the arbitrator to notify the parties the amount of his charges, and to refuse to deliver the award or communicate its contents until they are paid. This obviates all disputes, and the practice has received repeated judicial sanction.

Sometimes a taxing officer is called upon to decide under sect. 15 (3) of the Arbitration Act, 1889, as to the fees of an arbitrator. It has been decided that upon such a taxation the taxing officer is not entitled, if the evidence all goes to show that in the opinion of persons in the same profession the charges made by the arbitrator are for a person in his position fair, to disregard that evidence and to reduce the remuneration to such an amount as is in his opinion fair (Mason, Ltd., *v.* Lovatt, 1907, 23 T. L. R. 486).

In that case a quantity surveyor had acted as arbitrator in a dispute between a firm of plumbers and a builder. The reference lasted for twenty-two days, and the arbitrator was subsequently employed for thirteen days in considering the case. He also took the advice of solicitor and counsel on certain points of law. He charged 527*l.* 10s., which included 10*l.* 10s. a day for thirty-five days, and 110*l.* 6s. for fees paid for legal advice. The District Registrar, disregarding the evidence of surveyors in good position, held that 5*l.* 5s. a day was sufficient, and reduced the above amount by 283*l.* 0s. 6d. The Court of Appeal set this judgment aside. Dealing with the surveyor's remuneration, Lord Justice Moulton said:—"The evidence is all one way that the price charged by him was fair for a person belonging to his profession and occupying the position which he occupied in that profession. The District Registrar was not entitled to set that evidence aside. The true standard, in my opinion, of what should be paid in such a case is what a fair-minded man in the position of the referee would have required if a bargain had been made freely beforehand. In this case there is no ground for supposing the referee has charged more than would have been required by a fair-minded man in a free bargain."

One word may be added as to the relative merits of legal and lay arbitrators. There is a very natural feeling rooted in the mind of the business community that a technical man should decide a technical case. It may be granted that an architect will require less instruction upon the technical aspect of a building dispute than most lawyers. But is the architect chosen as arbitrator accustomed to hear evidence; is he able to distinguish the true from the false; wholly unbiassed by any pet theory of building? These are matters to be thought of before the lay arbitrator is hastily chosen. There are many gentlemen in both branches of the legal profession who have had considerable experience in building cases, whose claims should not be lightly rejected. Perhaps the most satisfactory, although most costly, of all tribunals hitherto devised is that composed of two laymen sitting as arbitrators representing each party, presided over by a legal umpire selected by the two arbitrators.

EXTRAORDINARY TRAFFIC.

THE case of Billericay Rural District Council *v.* Poplar Guardians and Keeling, which we noted the *Builder*, April 14, has been carried to the Court of Appeal, which has approved the judgment of the Court below. We referred to the case in our issue of last week, p. 370.

Under the Highways and Locomotives Act, 1878-1898, it is provided that where, by the certificate of their surveyor, it appears, "having regard to the average expense of repairing highways in the neighbourhood," extraordinary expenses have been incurred in repairing a highway by reason of extraordinary traffic, the authority may recover "the amount of such expenses as may be proved to the satisfaction of the Court to have been incurred by such authority by reason of the damage arising from such weight or traffic." In the case in question the Court found that there had been some damage necessitating an expense greater than usual, but that as the rates had not thereby been increased the action failed. The Court of Appeal have approved this finding, but at present the decision is not fully reported. It would seem, however, that the case must have turned upon the absence of any proof that "extraordinary expenses had been incurred," and not, as appeared in the Court below, solely on the fact that the highway rate had not been increased. It is obvious that this fact alone can form no criterion, for the highway authority, by economy in methods of maintenance, or by expenses incurred in previous years, might, in fact, reduce the highway rate whilst yet including an item for extraordinary traffic. We shall await the full report of the decision with interest.

MASTER PAINTERS' CONVENTION:

THE EIGHTEENTH ANNUAL DINNER AT DERBY.

THE annual dinner in connexion with the Convention of the National Association of Master House Painters and Decorators of England and Wales was held at Derby on September 27. The President, Mr. Fredk. Grundy, presided, and he was supported by several ex-Presidents, while among the visitors were the Deputy-Mayor, Dr. H. Arnold-Bemrose; the Town Clerk, Mr. G. Trevelyan Lee; the Principal of the Technical College, Mr. F. W. Shurlock, and others.

The Deputy-Mayor, in responding to the toast of "The Town and Trade of Derby," remarked that "they had the primeval man who lived in caverns at a time when there were no houses to decorate. That he was of an artistic temperament was shown by the finding in a cavern at Cresswell of the first art memorial in the shape of the head of a horse engraved on the antlers of a deer. Paint was evidently used at that time—a composition of charcoal, oxide, of manganese, and some sort of grease, which showed that the arts of the painter did not begin when man commenced to live in houses."

In submitting the toast of "Technical Education," Mr. G. H. Morton expressed the opinion that, considering the vast amount of money spent on education, the results were nothing like what they should be.

Mr. F. W. Shurlock (Principal of the Technical College), in responding, said it was the first time that the toast had been given in the town, and that the Master Painters had adopted it was very encouraging. The subject was of vital importance, and there was no doubt that it was not receiving the consideration it deserved in this country. There were different conceptions as to the usefulness of the work undertaken. His conception of technical education was, the highest training in the principles of sciences and art given to the ablest and best of the young people in their industries. He congratulated the Association on the interest they had displayed in educational matters. He only wished that

other associations of employers would follow so excellent an example, and particularly trade unions, for in these days they could not hope to go back to the old arrangements when in the guilds masters and apprentices were associated one with another. They had, unfortunately, got beyond the parting of the ways in that particular, and the masters and men would probably live to remain separate in the future. Signs were not wanting that this Association was filling up the breach caused. A feature of the Exhibition, which he should like to refer to, was the work done by the apprentices, and the work done under Mr. Fletcher reflected great credit on the Leicester Art School. With regard to the Derby School, he was pleased to say they had fifteen painter apprentices from the Derby Association. They were instructed in the principles of drawing, and so far as this went it was healthy and useful. There was no reason why they should not have decorating classes at the College; if a reasonable number of pupils came forward, such a class, he had no doubt, could be started immediately.

The chief toast of the evening, "The National Association of Master Painters of England and Wales," was proposed by Mr. Sibthorpe, who said he had watched the advancement of the English Association for a considerable time, and he could say they had endeavoured to lift the craft to a genuine art, and had tried to make it, not merely a trade, but that it should deserve first and command afterwards the respect of the public for whom they catered. It had been a growing conviction with him that of all the associations that of England was the most business-like. It set itself out to do great things, and it invariably succeeded, and those things were exactly pertinent to its functions in life. On the question of technical education one great mistake had been made. While every attention had been given to the class generally, the bright boy who showed every promise had not received the particular encouragement he merited. If more attention had been paid to the particularly bright boys they might have become leaders of a great movement in the future.

Responding, the Chairman said that the Association, starting in a small way, had grown into something to be proud of. It was like good wine, it needed no bush, and both from a social and business point of view was well worthy of its position in the painting world.

GENERAL BUILDING NEWS.

NEW CHURCH AT GRANGETOWN.

The Lord Bishop of Durham has consecrated the first portion of the new church of St. Aidan at Grangetown, Sunderland. The church is built of Lincolnshire bricks, with dressings of Dumfries stone. The late Mr. C. Hodgson Fowler, F.S.A., was the architect, and Mr. W. H. Wood, F.R.I.B.A., has superintended the work. Messrs. J. & T. Parker, of Sunderland, are the builders.

CHURCH HALL, WATERLOO.

A church hall is being erected in connexion with the Church of St. John, Waterloo, Liverpool, from designs by Messrs. F. B. Hobbs and O. D. Black, FF.R.I.B.A. The cost will be about 3,600*l.*

NEW SCHOOL FOR NORWICH.

It has been decided to build a new elementary school in the suburb of Lakenham, Norwich. Such an institution has been needed for some time, and a good opportunity is afforded to obtain an important building.

SCHOOLS AT WOOD GREEN.

It is proposed to build new elementary schools at Lordship-lane, Wood Green. The plans have been approved by the Board of Education.

SECONDARY SCHOOLS, HARROGATE.

These schools were opened by the Bishop of Ripon on September 28. The original building has been remodelled, and an extension costing about 8,500*l.* has been made. The buildings now consist of four floors, and are to be used as a secondary school during the day, and a technical and art school in the evenings. In the basement are placed the following rooms:—Laundry, manual-room, boys' and girls' dining-rooms with kitchen, scullery, and stores adjoining, also boys' cloakroom and lavatory. On the ground floor are an assembly-room, 50 ft. by 34 ft., six classrooms, masters' and mistresses' rooms, headmaster's room and office, and girls' cloakroom and lavatory. On the first floor are four classrooms, physics laboratory, chemical laboratory with balance-room and stores and lecture-room, large commercial classroom, room for needlework and dressmaking, large cookery room and masters' room. On the second floor is arranged the art department, consisting of antique-room, modelling-room, elementary art-room, painting-room, painters' and decorators' room, room for wood carving, besides masters' room and boys' and girls' cloakroom and lavatories. In an adjoining building, connected by covered corridors, is a gymnasium, 50 ft. by 36 ft., with changing-rooms for each sex. The whole of the rooms are well lighted, and the heating and ventilation is of the best type. Playgrounds for each sex are provided with covered sheds and bicycle rooms. The total cost of the complete block has been about 13,000*l.* The architects for the extension are Messrs. W. J. Morley & Son, of Bradford, who were also responsible for the original building.

BRADWELL, BUCKS.

At a meeting of school managers and County Council representatives, held at Bradwell, it was decided to petition the Aylesbury Education Committee to provide a new boys' school at a cost of 6,000*l.*

ROMFORD BOYS' SCHOOL.

A secondary school for boys is to be built at Romford. Building is going on rapidly in the district, and the need for special accommodation is felt.

BRISTOL BAPTIST COLLEGE.

It is expected that tenders will be invited shortly for the construction in Tyndall's Park of the Bristol Baptist College, the cost of which is estimated to be about 16,000*l.* Messrs. Oatley & Lawrence are the architects.

SCIENCE DEPARTMENT, SHEFFIELD UNIVERSITY.

The Drapers' Company have given 15,000*l.* towards the cost of an Applied Science Department in connexion with the Sheffield University. The architects of the new building are Messrs. Gibbs, Flockton, & Teather, Sheffield.

NEW INSTITUTE AT HARROLD, BEDFORDSHIRE.

The new institute has been erected on a site adjoining the present institute, and comprises a large hall, committee-room, kitchen, etc. The architect for the work was Mr. M. Clayon, and the contract was carried out by Messrs. Clayson & Sons.

CHURCH INSTITUTE, SOUTH SHIELDS.

This building, which has been formally opened in Hardwick-street, South Shields, is part of a scheme to provide for the religious, educational, and social needs of the parish. Mr. J. H. Morton, F.R.I.B.A., was the architect, and Messrs. Sheriff & Sons, South Shields, were the contractors.

WESTON-SUPER-MARE.

Mr. E. K. North, M.Inst.C.E., an Inspector of the Local Government Board, has held an inquiry in connexion with the proposed purchase by the Urban Council of land at Weston-super-Mare, the object being the provision of public abattoirs, cattle market, depôt, refuse destructor, and workmen's dwellings.

OUTFALL SEWERAGE SCHEME.

The Rhymney Valley authorities have decided to seek Parliamentary powers to construct a sea outfall sewerage scheme to cost something over 200,000*l.* The 50,000*l.* allowed for the construction of a trunk sewer from the north of the valley down the Tyn-y-coed is included in the estimate.

HULL TOWN HALL.

The second portion of the new Town Hall at Hull having been completed, and the Council having decided to take down the front portion to rebuild it in a style more in keeping with the remainder, tenders have been considered by the Property Committee of the Corporation. The architects (Messrs. Russell & Cooper) estimated the cost of the work at 25,000*l.*, and the tender by Messrs. Quibell, Son, & Greenwood, which was accepted, was for 25,378*l.*

PUMPING STATION, MEOPHAM.

The tender of Messrs. W. H. Archer & Son, of Gravesend, has been accepted by the Gravesend and Milton Waterworks Company for the erection of a new pumping station at Walnut's Wood, Meopham. The cost of the work will be about 6,000*l.*

POST OFFICE, LLANELLY.

A new post office has been erected at Llanelly by H.M. Office of Works. It is a three-floor building, with a frontage of 113 ft.

SANATORIUM EXTENSION, EXETER.

The Exeter City Council propose to spend 15,500*l.* in extensions to the Sanatorium. If possible, the work will be done during the winter, so that employment may be given to mechanics and artisans.

PARISH HALLS, PORT-GLASGOW.

Mr. Allan F. Duncan, of Glasgow, is the architect of the new parish church halls to be built in the Port-Glasgow Bay Area, and Messrs. Peter M'Bride & Co., Port-Glasgow, are the contractors.

BURSLEM TOWN HALL.

At the formal opening of the new Town Hall at Burslem, designed by Mr. S. B. Russell, F.R.I.B.A., the Mayor (Major Cecil Wedgwood, D.S.O.) had something to say on the subject of present-day decorations. He thought his audience would agree with him when he said that the new Town Hall was a very handsome building. The taste which had been displayed was excellent, for the decoration was of a reticent character. In present-day decoration they were apt to run very much to detail of ornament, and were too apt to forget the value of good proportion and simplicity. He was always laughed at by his friends because he admired the entrance to Euston Station. What appealed to him about the entrance was the simplicity of that enormous arch. He thought that in carrying out the decoration of their own building the idea had been to avoid plastering it all over with ornament. It was very often the case that over-ornamentation was used to hide faults, and also to smother bad proportions. It was the most difficult thing in the world to obtain simplicity and good proportion, but he did think that in that building they had a stately structure. Mr. R. O. B. North, clerk of works, in the absence of the architect, described the building.

TRADE NEWS.

The use of the "Ceresit" waterproofing medium for concrete, stone, and brick buildings was successfully demonstrated last year at the Brussels Exhibition, where the highest award was secured. The "Grand Prix" of the Turin Exhibition has been awarded to "Ceresit."

The Yale & Towne Company, 6, City-road, E.C., have a "Window Display" advertisement leaflet, which may be had on application by ironmongers.

The Union Infirmary, Sevenoaks, is being supplied with Shorland's warm-air ventilating patent Manchester grates by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester.

THE BUILDING TRADE IN MANCHESTER.

It is expected that a favourable reply will be sent by the Manchester, Salford, and District Building Trades Employers' Association to the Labourers' Union on the question of increased wages and revised working hours for labourers.

PROJECTED NEW BUILDINGS IN THE PROVINCES.*

ABERAMAN.—Church hall (1,800*l.*): Mr. George Kenshole, architect, Hengoed; Mr. D. Tyssul Davies, builder, Trecynon.

Aberdeen. — Extensions to premises of Northern Co-operative Society (4,000*l.*): Messrs. Wilsons & Walker, architects, 1 and 1A, Union-street, Aberdeen.

Adwick-le-Street.—Police station; Messrs. Denholm & Co., builders, Black-lane, Westgate, Wakefield.

Annfield Plain (Durham).—Proposed sixty houses; Mr. T. J. Trowsdale, Surveyor, Annfield Plain Urban District Council.

Backbarrow.—Cottages for the Leven Valley Co-operative Society.

Barnsley.—Enlargement of Holyrood Roman Catholic School (400 extra places); the Trustees.

Blaimachfoldfach (near Fort William).—School and teachers' room (3,000*l.*); Mr. James G. Falconer, architect, 4, Cameron-place, Fort William.

Bodmin.—Children's home; Mr. J. Pethybridge, Clerk, Board of Guardians, Bodmin, Cornwall.

Bradley.—Fifty-two houses, Bradley Lodge, for the Bradley Lodge Estate, Ltd.

Bridlington.—Workhouse laundry (500*l.*); Mr. T. Martindale, builder, St. George's-avenue, Bridlington.

Brighouse. — Police station and court (3,000*l.*); Mr. T. G. Carpenter, County Hall, Wakefield.

Bromley.—Various buildings (9,000*l.*): Mr. E. Haslehurst, Clerk, Board of Guardians, Bromley.

Brunshaw.—Thirty-six houses, Lodge Farm (11,135*l.*): Mr. G. H. Pickles, Surveyor, Burnley Town Council.

Burton-on-Trent.—Receiving home; architect, care of Mr. G. F. Chamberlain, Clerk, Board of Guardians, Burton-on-Trent.

* See also our list of Competitions, Contracts, etc., on another page

Butterknowle.—School; Mr. W. Rushworth, architect, Shire Hall, Durham; Mr. T. Manners, builder, Peel-street, Bishop Auckland.

Capelulo.—School (3,000*l.*): Mr. R. Ll. Jones, Market Place, Carnarvon.

Castle Combe.—Additions to school (2,000*l.*); Mr. J. G. Powell, County Surveyor, Trowbridge.

Catchgate (Durham).—Houses; Mr. T. J. Trowsdale, Surveyor, Annfield Plain Urban District Council.

Christchurch (Hants).—Laundry at workhouse (1,800*l.*); architect, care of Mr. Alan Druit, Clerk, Board of Guardians, Christchurch.

Clayton. — Laying-out of Alderdale Hall Estate (about 2,000 houses); Alderdale Estate Company, Ltd.

Conisborough.—Swimming baths; Surveyor, Conisborough Parish Council.

Coventry.—Motor works for Triumph Cycle Company, Priory-street; Mr. F. R. I. Meakin, Warwick-row, Coventry.

Crocket Ford.—School (3,000*l.*): Messrs. Barber & Bowie, architects, 53, Buccleugh-street, Dumfries.

Dalmarnock. — Congregational church (2,000*l.*); Mr. J. C. McKeller, Davidson, & Gunn, 45, West Nile-street, Glasgow.

Darlington.—School (3,000*l.*): Mr. G. Winter, Borough Surveyor, Town Hall, Darlington.

Darnley (Renfrewshire). — Additions to hospital (2,000*l.*); Messrs. McWhannel, Rogerson, & Reid, architects, 55, West Regent-street, Glasgow.

Devizes.—Cottage hospital; Mr. A. J. Randall, architect, Wine-street, Devizes.

Doncaster.—Sixty houses, Warmsworth, and fifty houses, Carr House and Enfield (about 40,000*l.*): Mr. F. O. Kirkby, Surveyor, Doncaster Town Council.

Douglas (Isle of Man).—Villa Marina (15,025*l.*); Mr. D. Rhodes, builder, Skinner-lane, Leeds.

Droylsden.—Development of Alderdale Estate (about 1,000 houses); Mr. G. W. Laughton, Alderdale Hall, Droylsden.

Dumbarton. — Lodging-house, Rink-street (3,000*l.*); Mr. James Bell, architect, 8, Merry-street, Motherwell.

Dundrennan.—Schools (2,000*l.*); Mr. R. Wallace, St. Mary's-street, Kirkcudbright.

Eccles.—The following plans have been passed:—Office building at Barton Hall Engine Works, Gorton-street, Peel Green, for Messrs. L. Gardner & Sons, Ltd. Alterations to Nos. 294 and 296, Liverpool-road, Patricroft, for Messrs. W. H. Robinson & Sons.

Edinburgh. — Four houses, Mayfield-road (4,000*l.*); Messrs. Menzies & Cockburn, architects, 33, York-place, Edinburgh.

Ellesmere Port.—School (5,925*l.*); Messrs. Dryland & Preston, builders, Littleborough.

Elworth (near Sandbach).—Wesleyan church (4,500*l.*); Messrs. A. Price & Sons, Sandbach.

Erith.—Club and institute, Valley-road: Trustees, Erith Men's Club and Institute, Erith. Extension at works for the Callander Cable and Construction Company, Ltd.

Exeter.—Laundry at workhouse; Mr. R. M. Challice, architect, Bedford-circus, Exeter.

Falkirk.—Conversion of Olympia Skating Rink into electric theatre; The Theatre and Entertainment Development Syndicate, Kingsway, W.C.

Frome (Somersetshire).—Children's home, Whitewell-road: Mr. W. R. Kent, Clerk, Board of Guardians, Frome.

Glasgow.—Extension to Calton Public School (2,500*l.*): Mr. David Maben, M.W. School Board Offices, 16, Royal Exchange-square, Glasgow. Extensions to Victoria Bakery (2,100*l.*) for Messrs. McFarlane, Lang, & Co.; Messrs. James Monro & Son, architects, 28, Bath-street, Glasgow. Foundry, Finniston-street (5,550*l.*); Mr. Charles Henry, 35, Minerva-street, Glasgow. Additions to buildings, Kinning Park (2,200*l.*), also shops and houses (4,000*l.*): Messrs. Bruce & Hay, architects, 261, West George-street, Glasgow.

Grangemouth. — Proposed creosote works (4,000*l.*) for Messrs. W. Christie & Co., The Docks, Grangemouth.

Greenside.—Additions to school (1,850*l.*); Mr. Gavin Paterson, architect, 6, Cadzow-street, Hamilton.

Hampreston.—School (3,000*l.*): Mr. J. Fletcher, Shire Hall, Dorchester.

Hanley. — Sunday school, Trinity-street (1,350*l.*); Mr. H. W. Shaw, architect, Hanley; Messrs. George Ellis & Sons, builders, High-street, Hanley.

Harrow.—Pavilion: Mr. J. P. Bennetts, Surveyor, Harrow Urban District Council.

Haslemere.—Fifty houses; Mr. A. M. Brownrigg, Haslemere, and Mr. Raymond Unwin, Letchworth, joint architects.

Houghton-le-Spring.—Drill hall (3,000*l.*); Mr. H. Chapman, 38, Grainger-street, Newcastle.

Hovenden House (Lincs).—Garage, etc. (1,250*l.*): Mr. J. Dixon-Spain, architect, 19, Hanover-square, W.

Hursley (near Winchester).—Eight cottages, Hursley Estate, near Winchester (2,230*l.*); Messrs. J. Nicholl & Co., builders, Southampton.

Hurst.—Sunday school, Ormonde-street; Architect, care of the Primitive Methodist Trustees.

Hyde.—Alterations and extensions to St. George's Church Endowed School; the Managers.

Kilmarnock. — Additions to infirmary (10,000*l.*); Messrs. John Burnett & Son, architects, 234, St. Vincent-street, Glasgow.

King's Lynn.—Works (20,000*l.*) for Messrs. Orton & Spooner, Engineers, Burton-on-Trent.

Kirkintilloch.—Church (14,000*l.*); Mr. George Bell, 212, St. Vincent-street, Glasgow.

Lanark.—School (8,000*l.*); Messrs. Traill & Stewart, architects, 38, High-street, Lanark.

Leicester.—School (6,000*l.*); Mr. T. Groves, Secretary, Education Committee, Leicester Town Council.

Lickey (Worcestershire). — Sanatorium (7,000*l.*); Messrs. Martin & Martin, architects, Colmore-row, Birmingham; Messrs. T. Lowe & Son, builders, Cambridge-street, Birmingham.

Limbury (Bedfordshire).—School (4,000*l.*), Messrs. Gotch & Saunders, architects, Market-street, Kettering.

Little Bytham (Lincs).—Workmen's houses: Mr. T. Lake, Surveyor, Bourne Rural District Council.

Little Mill.—School (2,000*l.*); Mr. W. Bowie, architect, 239, High-street, Ayr.

Liverpool.—Artisans' dwellings, Frank-street and Northumberland-street; Messrs. Brown & Packhouse, builders, 54-62, Chatham-street, Liverpool.

Llanddeiniolen.—School (6,000*l.*); Mr. R. Ll. Jones, Market-place, Carnarvon.

Longside.—Schools (4,000*l.*); Mr. G. T. Anderson, 1, Crown-terrace, Aberdeen.

Lurgan. — Seventy houses (24,100*l.*); Surveyor, Lurgan Rural District Council.

Melincrythan.—Siloh Mission Hall; Mr. J. Cook Rees, architect, Church-place, Neath; Messrs. Waring, Cole, & Waring, builders, Charles-street, Neath.

Merthyr.—Administrative block, etc. (600*l.*); Mr. J. C. Rees, architect, St. Mary's-chambers, Neath.

Mitchelstown.—Twelve houses (1,584*l.*); Mr. J. O'Mahoney, builder, care of the Surveyor, Mitchelstown Rural District Council.

New Buckenham (Norwich). — School (1,200*l.*); Mr. C. Brown, architect, Cathedral Precincts, Norwich.

Newcastle-on-Tyne.—Buildings, corner of Heaton Park-road and Shields-road, for Messrs. F. Beavan & Co. Warehouse and offices (5,000*l.*); Messrs. Watson & Scott, architects, 48, Dean-street, Newcastle. Block of offices, Northumberland-street; Mr. H. Gibson, architect, Camden-street, North Shields. Additions to workhouse (18,000*l.*): Mr. E. Bowman, architect, Westgate-road, Newcastle.

Newton Abbott.—Public swimming baths; Messrs. Rowell, Son, & Locke, architects, Newton Abbott.

Northampton.—Proposed improvements to school, Campbell-square; the Managers. The following plans have been passed:—Six houses, Sandringham-road and Thrusby-road, for Mr. W. C. Throssell; additions to No. 114, Oxford-street, for Mr. J. Holland; additions to factory, Freeschool-street, for Messrs. J. & G. Roe; eleven houses, Newington-road, and thirty-five houses, Kingsthorpe-grove and St. David's-road, for Mr. A. J. Chown; ten houses, Raymond-road, for Mr. J. W. Gossage; six houses, Southampton-road, and two shops, Wellingborough-road, for Messrs. A. R. & W. Cleaver; additions to premises, Vernon-terrace School, St. Giles School, and Stimpson-avenue School, for Mr. S. Beattie, Secretary, Education Committee, Northampton Town Council: ten houses, Alton-street, for Mr. J. D. Pullen & Sons; steam bakery, Barry-road, for the Northampton Co-operative Society, Ltd.

North Croft.—Church and suite of halls on site of Old Abercarn Foundry: Mr. T. G. Abercrombie, architect, 1, County-place, Paisley.

Norwich.—Gallery at Museum (1,464*l.*); Messrs. Gill & Son, builders, Norwich.

Oundle.—Extensions to isolation hospital: Mr. R. E. Wilson, Surveyor, Oundle Rural District Council.

Paisley.—Additions to works, Violet-street, for Messrs. Eadie Bros. & Co., Ltd.

Penwortham.—Institute (1,000*l.*): Vicar, St. Leonard's Church. Institute (700*l.*); Vicar, St. Mary's Church.

Perry Barr (near Birmingham).—School (6,000*l.*); Mr. Hutchings, Education Offices, Stafford.

Plymouth.—Additions to Throat and Ear Hospital (2,000*l.*); Messrs. Thorneley & Rooke, architects, The Crescent, Plymouth. Proposed conversion of Beaumont House into swimming baths; Mr. J. Paton, Borough Surveyor, Plymouth Town Council.

Pontefract.—Block of dwellings (5,000*l.*); Mr. W. J. Tennant, architect, Ropergate-chambers, Pontefract.

Port Glasgow.—Parish church halls, Port Glasgow Bay Area (2,000*l.*); Mr. A. F. Duncan, architect, Glasgow; Messrs. Peter McBride & Co., builders, Chapel-lane, Port Glasgow.

Portobello.—Five houses, Brunstone-road (4,000*l.*); Mr. E. Colvert, 16, North-street, Dund-street, Edinburgh.

Preston.—Grammar school (16,500*l.*); Messrs. Woolfall & Eccles, architects, Liverpool; Messrs. Thomas Croft & Sons, builders, Green Bank Stone Yard, Victoria-street, Preston.

Reading.—Catholic school, Abbey Ruins; Rev. Canon Scoles, The Presbytery, Basingstoke.

Ribchester. — Alterations to workhouse (5,100*l.*); Mr. J. Clarke, Clerk, Board of Guardians, Preston.

Rosemount.—Construction of swimming bath at school (3,900*l.*); Aberdeen School Board.

Scunthorpe (Lincs).—Mission hall (3,000*l.*); Messrs. George Baines & Co., architects, 5, Clement's Inn, Strand, W.C.

Shankhill (Co. Dublin).—Carnegie Library (856*l.*); Mr. George Bower, builder, Ballybrack.

Southampton. — Proposed school, Shirley (1,200 places); Mr. J. Cruickshank, Secretary, Education Committee, Southampton Town Council. The following plans have been passed:—Mission hall, King-street, for Messrs. Mitchell, Son, & Gutteridge; warehouse, Brinton's-terrace, for Mr. W. A. Kneller; five houses, Empress, Oumdurman, and Handel roads, for Mr. F. W. Young; four houses, Nile-road, for Messrs. Lemon & Blizard; six houses, Ampthill-road, for Mackintosh Bros.; additions, Normanhurst, Hulse-road, for Mr. W. B. Hill; office, stores, etc., Belvedere-road, for Messrs. Weston & Burnett. The following plans have been lodged:—Ten houses, Westbourne-crescent, for Mr. J. Smith; alterations to building adjoining the Bristol Hotel, Terminus-terrace, for Messrs. Emanuel & Emanuel; four houses, St. James'-road, for Mr. J. V. Blake; alterations to Philharmonic Hall, Above Bar-street, for Messrs. Goodwyn & Sons.

Southend.—Parish hall; Trustees, Roman Catholic Church, Southchurch-road, Southend.

South Moor.—Parochial hall and church institute (1,800*l.*); Mr. E. Dyson, builder, Pelton.

South Shields. — Schools, Stanhope-road (8,500*l.*); Mr. Page, architect, King-street, South Shields; Mr. J. L. Miller, builder, North Shields.

St. Andrews (Fifeshire).—Drill hall for Burgh School (2,000*l.*); Mr. David Henry, architect, Church-square, St. Andrews.

Stanley.—Club; Architect, care of the Secretary, Excelsior Club, Greenland.

St. Mary Cray.—Extensions at mills for Messrs. Joynson.

Taunton.—Additions to school (5,800*l.*); Mr. F. W. Roberts, Hammett-street, Taunton; Messrs. W. Potter & Sons, builders, Rowbarton, Taunton.

Ton Law.—Alterations to foundry for Messrs. Bond.

Tranent.—School, Ormiston-road (5,000*l.*); Mr. Peter Whitecross, architect, Wine-street, Devizes.

Troon.—Villa, Bentinck Drive (1,700*l.*) for Dr. Sloan, Troon.

Twickenham.—A plan has been passed for a picture theatre, Richmond-road, for The Estate Land and Houses, Ltd., 85, Weston Park, Hornsey, N.

Twynholm.—School (3,000*l.*); Mr. J. A. McGregor, architect, King-street, Castle Douglas.

Uddingston.—Laundry, manual workshop, etc. (2,250*l.*), for the Bothwell School Board.

Wallsend.—Two cemetery churches (5,000*l.*); Mr. E. Cratney, architect, Station-road, Wallsend. Institute (2,000*l.*); Messrs. White & Stephenson, architects, 59, Grey-street, Newcastle.

Wareham.—Drill hall and offices; Messrs. Fletcher, Son, & Brett, The Chantry, Wimborne.

Warrington.—A plan has been passed for Messrs. Rylands Bros., Ltd., for new building, Algernon-street.

Waterfoot (Rawtenstall). — Extensions to Globe Works for the Newchurch Boot Company.

Wem.—Alterations and extensions to the Conservative Club; architect, care of the Secretary.

Wyken Colliery (Warwick).—School (3,600*l.*); Mr. J. Willmott, 6, Waterloo-street, Birmingham.

Wylan.—Miners' hall and institute; Messrs. W. Dixon & Son, Biggmarket, Newcastle.

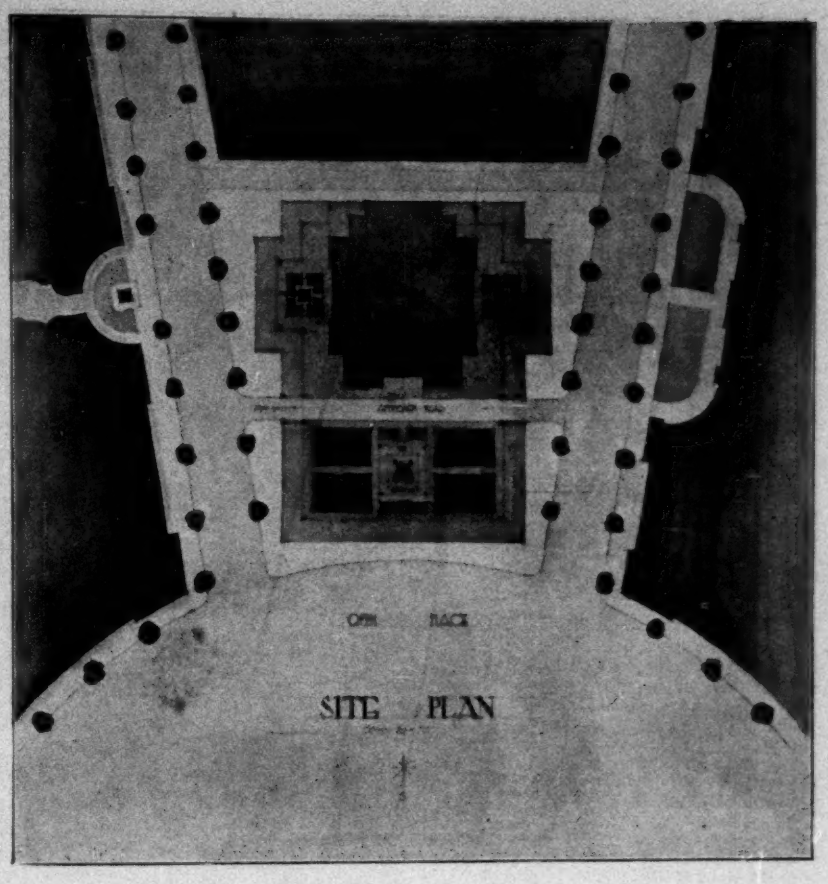
Yaxley.—Parish hall; Surveyor, Yaxley Parish Council.

York. — Children's home at workhouse (1,500*l.*); Mr. J. H. Morton, architect, North Eastern Bank-chambers, South Shields.

ARCHITECTS AND GARDENS.

WE quote the following from an article in the *Field*:—"When the architect is asked to commit an architectural enormity—to combine, say, the tower of a Highland granite castle with the timbers of Shropshire or Jacobean brick—then he is plainly right in refusing to build what he is asked to build. And so in lesser difficulties; he may very likely bring his client to reason by pointing out that his proposition is comparable with others more easily understood by the layman—with wearing a straw hat with a frock coat, perhaps. And his client, if he would think the matter out, might remember that the architect's reputation has to stand or fall in the end with the house, as his fellow-architects will see it when it is built. He ought, when he has selected his architect, to give him as free a hand as he would give the artist whom he commissioned to paint a portrait or the sculptor who has undertaken a statue. To the architect who means to devote the experience of a lifetime to thinking out the design of a house it is just as important to know that he can work free and unfettered as it would be to a poet or essayist engaged in composition. The architect can no more easily embody the conception of another brain in his own design than the poet or prose writer can undertake to employ a particular epithet about a particular thing in a particular place.

So much for the building of the house. But the planning of the garden is a little different. The man who has set out on the patient business of watching an architect build him a house may possibly one fine day find himself in an unexpected and rather awkward position. He may have delivered the whole detail of the building of the house into the architect's hands, and may have consoled himself with the reflection that his own turn will come with the planning of the garden (a matter to which, perhaps, he has given some study), and he may then possibly discover that the architect has taken it for granted that the designing of the garden will go with the designing of the house. He may find this as disquieting as it is at first surprising; but if once more he thinks the matter out he will see that—up to a point—the architect has reason on his side. A house of a certain design clearly ought to be set in certain surroundings. In most cases it would be difficult to imagine that the setting of the house could not be bettered by the experience of an architect, while in some cases his help may be even imperative. In the designing of flights of steps, for instance, or the arrangement of terraces demanding stonework or brick building, the amateur can only trust to his architect to save him from incongruity or worse. But the question then arises, Is there not a limit to which the architect may fairly be confined? Apart from any question of expense, which in the designing of elaborate terraces, paving, or flights of steps may be very considerable, may not the client justifiably decide that there is a point at which the garden ceases to be the architect's property, so to speak, and becomes the property of its owner? If there is not, he may well ask, Will the architect pay the bills for the setting of the house and the wages of the staff needed to keep up the garden?

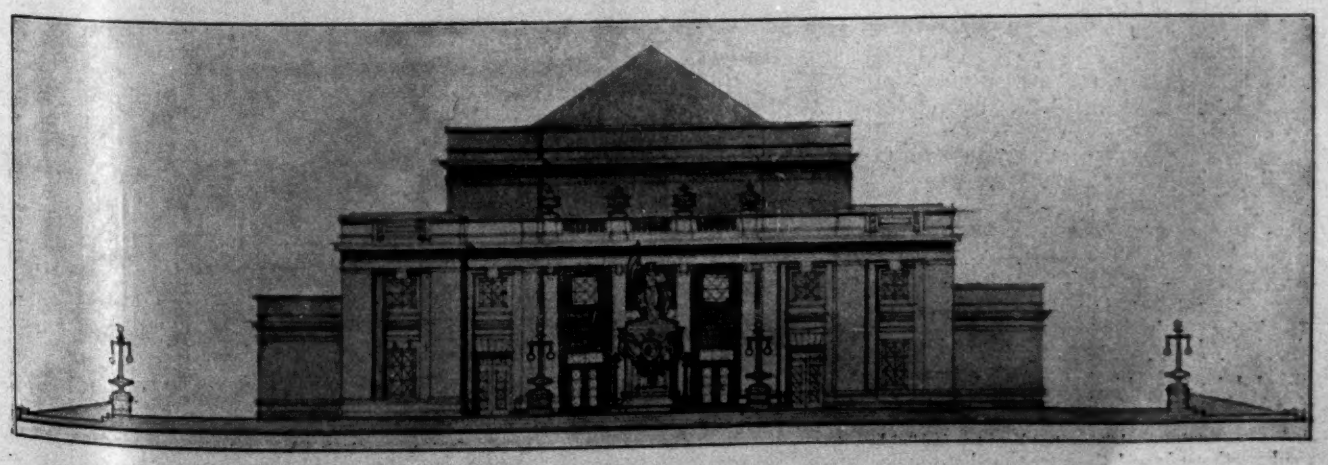


A.A. Silver Medal: Design for a Concert Hall. Site Plan.

Somewhere in that question, in reality, lies the answer to the problem. Apart from any considerations of etiquette, or of a desire on the part of the client to give the artistic expression of his architect free play, the first point to be settled is how much the client is prepared to pay to get the kind of setting which the architect desires. That is a simple matter which can be decided at once by the length of purse-strings, and need not want any more arguing. But the next point is equally important, and it is one which the architect for his part will do well to realise. It is that, whatever be the initial design of the garden, it will eventually be the expression of the taste of its owner, and not of the architect. If, for instance, the owner of the garden is interested in rock plants, or in flowering shrubs, or in growing delicate and difficult plants rather than in obtaining masses of colour, it is no good to give him some other kind of gardening to do, because he will not do it. If he dislikes to have a wide expanse of lawn, with the perpetual necessity of mowing, it is no use designing him hundreds of square yards of grass. If he thinks bedding out the worst possible use to which to put flowers and gardeners, it is no use for the architect to surround the house with formal beds. They will revert; everything will revert to the type of mind of the owner. So that the architect, if he will realise it, should compose his setting, keeping always in mind the temperament of the gardener with whom he has to deal. As regards expense, it is his business, and a business which he well understands, to see what can best be done with the amount of money at his disposal; he sets the house, then, as simply or as elaborately as he chooses or is able to set it. But outside the immediate setting he will realise that he cannot go. He may think, and he may be right in thinking, that he knows better than the owner of the garden what the garden should be; but since the garden will become in any case what its owner wishes, he will do well not to attempt to touch what he knows he cannot be sure of holding. E. P."

A.A. SILVER MEDAL.

REFERENCE has been made already to the competitive designs for the Silver Medal of the Architectural Association (see issue June 23, p. 778). We now supplement our criticism with illustrations of the drawings by Mr. Wyville Home, which obtained the award. In carrying out the design for the concert hall the author has availed himself of the large site at his disposal, and has assumed that the whole work would be erected to the memory of a national hero. The treatment accordingly is large in scale, the whole site being raised on terraces carried out in a broad and severe manner. The memorial



A.A. Silver Medal: "Design for a Concert Hall in a County Town." Elevation to Place.
By Mr. G. Wyville Home.

Concert Hall: Cross Section.

Concert Hall: Longitudinal Section.

stands axially in front of the hall, while fountains flank it on either side, and a note of colour is introduced by the grass lawns expanded round these features. The hall itself has been treated in a severe academic manner, dignity being striven after by the long, low lines of the building and by the restraint and concentration of ornament and shadow.

LONDON COUNCILS.

Bermondsey.—The tender of Tarmac, Ltd., Wolverhampton, has been accepted at 842*l.*, 10*s.* for the laying of a tar macadam roadway in Galleywall-road.

Bethnal Green.—A plan submitted by Messrs. Andrew & Peascod, on behalf of Messrs. S. Clarke & Co., Ltd., for the erection of an addition to the latter's factory on the north side of Chisenhale-road, has been approved, as has also an application from Mr. L. T. Dunn for consent to the drainage of the proposed vestry at St. Peter's Church, St. Peter-street.

Edmonton.—At the last meeting of the Board of Guardians the committee appointed to report on the question of a female relieving officer was instructed also to report as to the advisability of providing a home in the country for the Board's patients who needed convalescent treatment.

Fulham.—A communication is to be sent to the London County Council drawing attention to the projected sale of the Sulivan Estate, and asking them to consider the desirability of forming a town planning scheme in connexion with the development of the estate. The Council have decided to raise no objection to the line of frontage of three one-story shops proposed to be erected on a portion of the forecourt of 624, Fulham-road, by Mr. J. Codrington, of 17, Doneraile-street, Fulham.

Greenwich.—Instructions have been given to the Borough Engineer to proceed with the work of relaying the woodpaving from the eastern corner of King William-street along the northern side of Nelson-street at an estimated cost of 147*l.*

Hanwell.—At the last meeting the Urban District Council the Chairman moved "that application be made to the Local Government Board for authority to prepare a town-planning scheme in respect of certain land within the Urban District." This was seconded by Councillor Poole, and approved of. Application is to be made to the Local Government Board for a loan of 600*l.* for carrying out the work of extending Springfield-road northwards and then westwards to opposite the centre of Conolly-road.

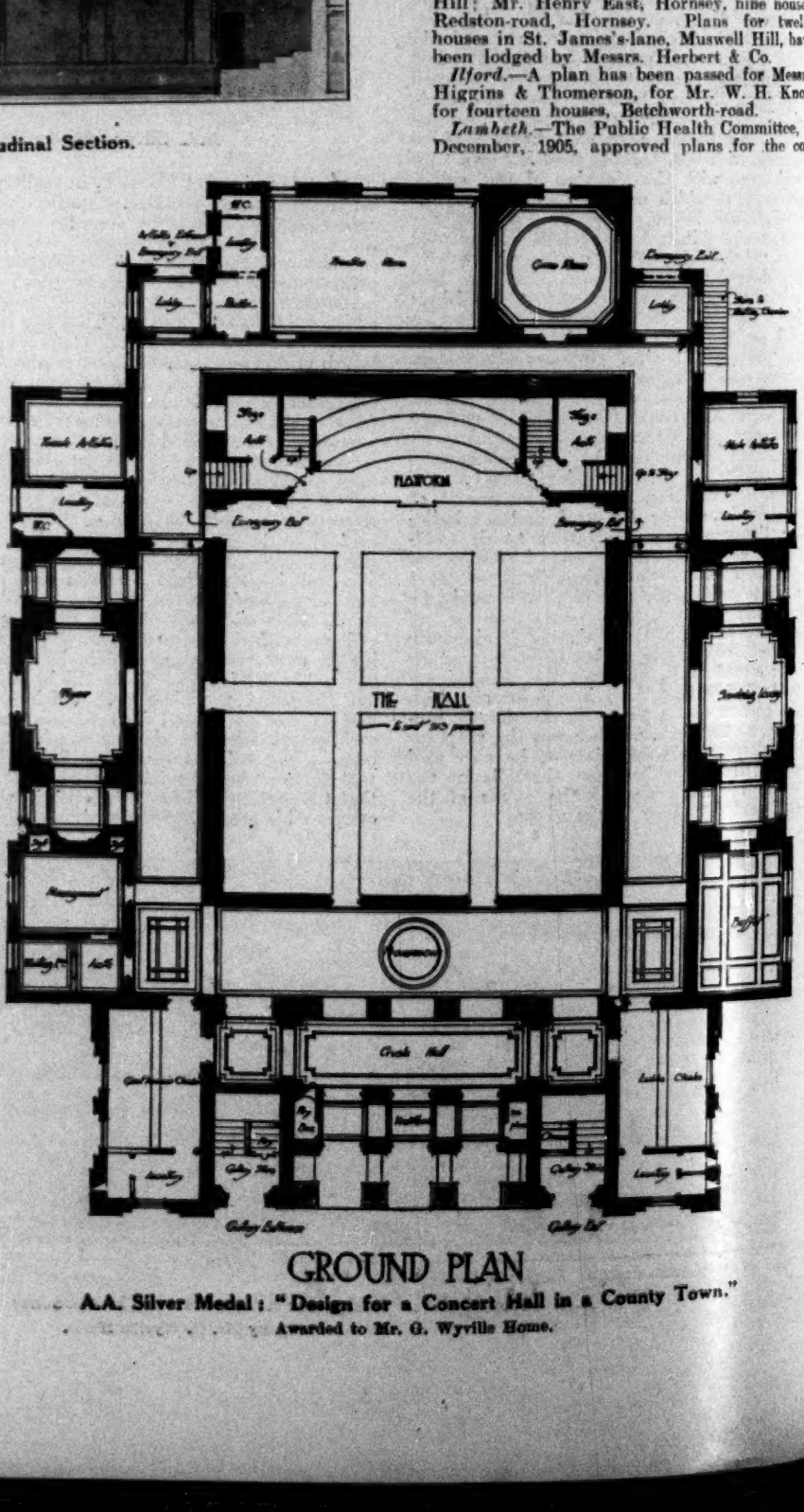
Hendon.—The Surveyor of the Rural District Council has been instructed to put in hand the work of piping the ditch and forming a footpath in the portion of Marsh-lane, Stanmore. Mr. A. W. Elkington, on behalf of Mr. T. Elkinton, has lodged plans for eight houses in Canons-lane, Pinner.

Heston and Isleworth.—The tender of Mr. T. Chapman, at 582*l.*, has been accepted in lieu of that of Messrs. Packer & Co., at 424*l.*, to construct a sewer in Jersey-road. The following plans have been passed:—Messrs. Hamiltons, twenty-one houses and shops, Thornbury-road, and six houses, Jersey-road, Osterley. Mr. B. Potter, alterations to the Eagle, Whitton-road, Hounslow; George the Fourth, Staines-road, Hounslow; Traveller's Friend, Bath-road, Hounslow; and the Queen's Head, Heston. Messrs. Watney, Coombe, Reid, & Co., Ltd., alterations to the County Arms, Hounslow, and the Duke of York, Hounslow. Messrs. Nowell Parr & Kates, public-house, Kingsley-road, Hounslow; also offices, Northumberland Wharf, Brentford End. Mr. G. S. Valentin, alterations to Electric Empire, High-street, Hounslow. Mr. Frank J. Fisher, alterations at the Rose and Crown, Heston; North Star, North Hyde; and Hope and Anchor, Sutton. The following plans have been lodged:—Messrs. Smee & Houchin, chapel, Staines-road, Hounslow. Messrs. Ashby's Brewery, Ltd., alterations to Jolly Waggoners, Dockwell; North Star, Whitton-road, Hounslow; and Royal Albion, Hibernia-road, Hounslow. Mr. H. R. Peake, Hounslow Hospital, Staines-road, Hounslow.

Hornsey.—The following plans have been passed:—Mr. W. T. Walker, Finsbury-square, alterations and additions to "Kildermoria," Bishopswood-road, Highgate; Mr. Alex. Perie, six houses, Springcroft-avenue, Muswell Hill; Mr. Henry East, Hornsey, nine houses, Redston-road, Hornsey. Plans for twelve houses in St. James's-lane, Muswell Hill, have been lodged by Messrs. Herbert & Co.

Ilford.—A plan has been passed for Messrs. Higgins & Thomerson, for Mr. W. H. Knox, for fourteen houses, Betchworth-road.

Lambeth.—The Public Health Committee, in December, 1905, approved plans for the con-



GROUND PLAN

A.A. Silver Medal: "Design for a Concert Hall in a County Town."

Awarded to Mr. G. Wyville Home.

struction of an underground convenience at Kennington-gate, and accepted the tender of Messrs. Spencer, Santo, & Co., to carry out the work at a cost of 2,595*l*. After this had been done it was found necessary to obtain the formal approval of the London County Council to the construction of this convenience, as the site formed part of Kennington Park. This the London County Council refused to give, as they insisted on two free water-closets for each sex being provided instead of one, the number supplied by the Council. As no agreement could be come to it was decided to construct the convenience under a site opposite the "Horns" Tavern. The Committee now report that, owing to the strong representations which had been made to them as to the necessity for an underground convenience at Kennington-gate, they had instructed the Borough Engineer to interview the officers of the London County Council and explain fully to them the reasons for the Borough Council's inability to agree with the County Council's condition of providing two free water-closets for each sex. As a result the Parks and Open Spaces Committee of the County Council stated that they would depart from their usual practice and would be prepared to recommend the County Council to grant permission to the Borough Council to construct the proposed convenience subject to protective conditions. Under these circumstances the Borough Council have agreed to proceed with the work and to invite fresh tenders.

Leyton.—The Council have decided to grant the use of the Town Hall at a charge of 1*l*. 11s. 6d. to Mr. D. Freeman, 438, Lea Bridge-road, Leyton, for the purpose of holding a concert in aid of the funds for building a new Parish Institute in connexion with the Leyton Parish Church. The following plans have been passed:—Mr. H. G. Needham, seven houses, etc., Drayton-road; Mr. E. F. Selby, twelve houses, Hainault-road; Mr. A. E. Foulger, three houses, Colchester-road; Mr. F. J. Coxhead, addition to nurses' home, Beachcroft-road; Mr. A. Radcliffe, five houses, Cobbald-road. A plan has been lodged by Messrs. J. Greenwood, Ltd., for additions and alterations to the "Hare and Hounds" public-house, Lea Bridge-road.

London.—The Finance Committee of the City of London Guardians report having considered the plans and specifications of the Architect (Mr. A. E. Pridmore) and the Consulting Engineer (Mr. E. R. Dolly) for adapting the Board's Bow premises as a Metropolitan Poor Law Institution, at an estimated cost of 11,150*l*. (8,150*l*. for the Architect's scheme, and 3,000*l*. for the Engineer's scheme), and had come to the conclusion that application should be made to the Local Government Board for consent to the Guardians inviting tenders from selected firms instead of advertising for sealed tenders. It was also decided to enter into contracts with (1) Mr. E. R. Dolly, to supervise the engineering scheme at a fee of 250 guineas, no extras of any kind to be paid, and (2) with Mr. A. E. Pridmore, to supervise the building scheme at a fee of five per cent. on the certified amount of work done on completion of the scheme, and to pay him the sum of 50 guineas for plans and schemes submitted but not carried out.

Poplar.—It is proposed to carry out repairs and repaving works in the borough during the quarter ending December 31 next, at an approximate cost of 3,525*l*. A plan has been passed for Messrs. Humphreys, Ltd., for a hall at 56, East India Dock-road.

Shoreditch.—The tender of Messrs. Galbraith Bros., Ltd., Camberwell Green, S.E., has been accepted at 310*l*. for providing and laying a temporary floor over the pond of the first-class swimming-bath at the Hoxton Baths.

Southgate.—The tender of Messrs. Jennings & Grenfell, at 2,240*l*., has been accepted for making up the second section of Avenue-road. For the carrying out of improvement works in Fox-lane the tender of Messrs. W. & C French, at 2,330*l*., has been accepted. Plans submitted by the Surveyor have been approved for making up the following private streets:—Belsize-avenue, Bowes Park; Burford-gardens, Palmers Green; and Elm Park-road, Winchmore Hill; as have also plans for making up, etc., the unmade and unpaved section of Cranley-gardens. The following plans have been passed:—Messrs. Edmonsons, Ltd., eight houses, Arundel and Hoppers roads, Winchmore Hill; Messrs. W. A. Goring, twenty-seven houses, Fox-lane, and Bourne-hill, Palmers Green; Mr. W. C. Jones, alterations and additions to the lodge of the Skinners' Almshouses, Green-lanes, Palmers Green; Mr. J. C. Hill, nine houses, Oakthorpe-road, Palmers Green; Mr. W. J. Ward, five houses, Green-lanes, Palmers Green.

Staines.—The Joint Hospital Committee have accepted the tender of Messrs. C. Mott & Son, Ltd., Staines, at 368*l*., for roadmaking.

Stepney.—Electricity mains are to be extended in Buckle-street, Artichoke-hill, Chandler-street, and Sly-street.

Walthamstow.—Plans, specifications, etc., have been approved for making up part of Evesham-avenue, and notices are to be served upon the owners of premises in such streets to carry out the work. The Engineer submitted a plan for making up a portion of Brettenham-road at an approximate cost of 600*l*., and it has been decided to instruct the Surveyor to carry out the work, upon the Law Land Building Department, Ltd., depositing with the Council the estimated cost of the work, any difference between the estimated and the actual cost to be paid by, or refunded to, the owners. The Surveyor has further been instructed to lay Trinidad asphalt macadam in parts of High-street and Wood-street. Plans submitted by the Engineer have been approved for the laying out of the Salisbury Hall Estate. The following plans have been passed:—Mr. J. Dunn, 112 houses, Elphinstone-road; Mr. A. G. Barton, warehouse and workshop, Hale End-road; Mr. T. H. Gaskin, thirty-five houses, Oak Hill-gardens; Messrs. Carter, Paterson, & Co., Ltd., alterations to premises, Wood-street; Mr. J. E. Ashby, laboratory, Blackhorse-lane; Messrs. F. Boreham, Son, & Gladding, theatre, St. James-street; Messrs. Hoare & Wheeler, church, Selwyn-avenue; The Stratford Co-operative Society, branch dairy and depôt, Hoe-street. Plans have been lodged as follows:—Mr. W. T. Streather, twelve houses, Chingford-road; Mr. T. Baker, six shops, The Broadway, Winchester-road; Messrs. E. Hawkins & Co., Ltd., theatre, Wood-street.

Wandsworth.—The following plans have been passed:—Mr. J. J. Taylor, garage and offices at Streatham-hill; Mr. H. S. Lee, additions to bottled beer stores, Ram Brewery, High-street; Messrs. Rowley Bros., erection of tramcar sheds, Streatham-hill; Messrs. W. H. Lorden & Son, re-erection of Railway Bell beer-house, Mitcham-road, Tooting.

Watford.—At the last meeting of the Rural District Council, plans submitted by the Surveyor were approved for an extension of the sewer at Nash Mills for some 800 ft. at an estimated cost of 157*l*. Plans have been lodged by Mrs. Ackerman for three houses at Chorleywood.

OBITUARY.

Mr. W. W. Wroth.

The death, on September 26, is announced of Mr. Warwick William Wroth, F.S.A., Senior Assistant Keeper in the Department of Coins and Medals, British Museum. Mr. Wroth was a son of the late Rev. W. R. Wroth, Vicar of St. Philip's, Clerkenwell. In 1903-6 he brought out catalogues of the Greek coins and of the Imperial Byzantine coins in the national collection. He contributed a large number of articles to the "Dictionary of National Biography," including the two supplements, from the commencement of that undertaking more than twenty-five years ago, and with the assistance of his brother, Mr. E. A. Wroth, he published in 1896 a valuable work, entitled "London Pleasure Grounds," that embodies the results of painstaking research in many neglected or forgotten sources of information.

Mr. R. Morton, M.Inst.C.E.

The late Mr. Robert Morton, a native of Fife, was educated in Scotland as an engineer, and became manager of the London Gas Company's works at Nine Elms; he held that post until the amalgamation in 1883 with the Gas Light and Coke Company. He was a director of the South Suburban Gas and other companies, and for a long period of the South Metropolitan Gas Company, of which he was afterwards Chairman, succeeding Sir George Livesey, with whose schemes for the men's co-partnership and the abolition of Sunday labour in gasworks he was closely associated.

FOREIGN AND COLONIAL.

Rand Art Gallery.

So far as can be gathered, the trouble over the building of Johannesburg's Art Gallery is by no means ended. The matter will come before the Johannesburg Town Council again at no distant date, and the debate, it is said, will be extremely interesting. Some months ago a big controversy waged around the question whether Mr. Lutyens, the eminent English architect, should design the building, or whether there should be open competition among the architects of South Africa. The Council decided to entrust the work to Mr. Lutyens. Prior to this the sum of 20,000*l*. had been voted for the erection of the gallery, and a site in Joubert Park was agreed upon. The design of Mr. Lutyens has now been submitted to the Council, and it has been stated that if adopted, and the buildings carried out in stone, the cost will be considerably in excess of the sum sanctioned by the Council, and will, it is estimated, be at least 75,000*l*.

Fireproof Building, Russia (Poland).

The following information is from the report by H.M. Consul at Warsaw (Mr. C. Clive Bayley) on the trade of Poland and Grodno in 1910, which will shortly be issued:—

The houses built for the occupation of the richer classes are all on the flat system, while those for the poorer classes are similar to the British model dwellings, only perhaps a little more ornate. All buildings are supervised by a large committee of engineers and architects appointed by the municipality, and generally the construction is strong and good. Fireproof buildings are the fashion, and all fireproof materials are in demand. Reinforced concrete floors, staircases, and partitions are being slowly adopted, but at present hollow bricks are principally used for floors and partitions. The external finish of the houses is much less ornate than formerly, but the internal fittings—door handles, hinges, locks, window fittings, etc.—are much superior to those previously used, and consequently should attract the attention of the British manufacturer.

Emigration to Canada.

It is getting too late in the season for emigrants to start now, and those who go should be prepared to keep themselves during the winter if necessary. The building strike at Vancouver, British Columbia, is settled.

Emigration to Australia.

In Sydney and suburbs the building and iron trades have been fairly well employed, brickmakers being especially busy. The ironworkers at Lithgow have been on strike. In Victoria there has been plenty of work for mechanics, such as builders, carpenters, bricklayers, ironworkers, and boilermakers. Work of nearly all kinds is plentiful in South Australia, and there is a good demand for bricklayers, masons, cabinet makers, carpenters, plasterers, plumbers, and ironworkers. In Queensland there is plenty of employment for most classes of labour, such as men in the building trades, plumbers, fitters, etc. But at the same time there have been some labour troubles, the gasworkers at Brisbane and some railway navvies in the north having struck work. In Western Australia there is a good opening for carpenters and plumbers. Tasmania shows little demand for more mechanics or labourers.

PATENTS.

APPLICATIONS PUBLISHED.*

21,855 of 1910.—John Barron: Traps for sinks, lavatory basins, baths, and the like.

26,407 of 1910.—William Ernest Wyatt Millington: Traps for discharging liquids.

26,763 of 1910.—Cornelius George Nobbs and George Nobbs, Junr.: Apparatus for humidifying, purifying, or disinfecting the atmosphere of rooms and other enclosed spaces.

27,045 of 1910: John Eyre Russell: Cooking ranges.

27,130 of 1910.—John Marion Rauhoff: Manufacture of cement and concrete products.

4,151 of 1911.—George Gallop: Closet seats and pans.

5,608 of 1911.—Henri Gobert and Paul Meyer: Method of heating rooms, and apparatus therefor.

6,055 of 1911.—Wilhelm Becker, Jean Rosenberg, and Heinrich Rosenberg: Siphon traps for waste pipes.

6,379 of 1911.—John Baptist Murphy: Apparatus for supporting window sashes and the like, specially suitable for windows in doors of railway carriages.

10,450 of 1911.—Louis Lege: Seat-action flushing apparatus for water-closets.

10,610 of 1911.—Martin Sachs, Hans Pohlmann, and Paul Frank: Method of treating the surface of plaster or of a mass made from a mixture of granular material and a binding medium.

13,107 of 1911.—Horace Christman: Water-supply systems.

13,874 of 1911.—Karl Fuss: Stench traps for sinks, wall-troughs, and the like.

17,401 of 1911.—Friedrich George Wangelin: Urinals.

SELECTED PATENTS.

10,256 of 1910.—Edwin Dransfield and William Rigby, of the firm of Rigby & Mellor: Shaft tops and ventilators.

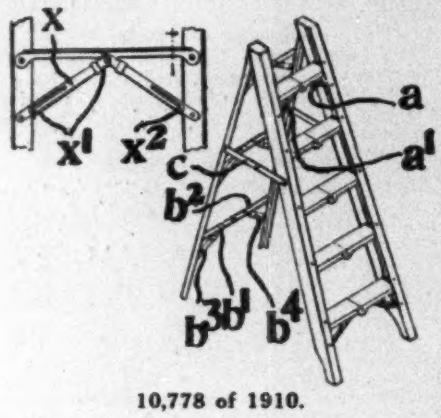
This relates to shaft-tops and ventilators, which are constructed so that the foul air is conducted into an upper chamber and is induced out to the atmosphere in a downward direction. In the shaft-top shown, foul air passes from the chamber *a* to the upper chamber *b* by way of short vertical tubes *c*, and is induced out of the aperture *d* on to the flat roof of the lower chamber by the wind blowing in the space between the chamber.

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

A similar construction is adopted in the ridge-roof ventilator shown, the draught in ducts *a* arranged on the roof induces the foul air out of the upper chamber *b* through apertures *d*.

10,778 of 1910.—Flora Williams Smith: Ladders.

This relates to folding ladders having the steps in two sections pivoted together and to channel-section ladder sides, and consists in providing struts pivoted to the ladder sides and to the steps. The struts *a*, a^1, for the top and bottom steps each consist of two parts *x*, x^1, pivoted respectively to the step and ladder side, one part being slotted, and the other being provided with a stud x^2, which slides in and engages a notch at the end of the slot. The ladder may be provided with back legs of angle section to form a step-ladder, the back legs being connected together by pivoted divided straps b^1, b^2, secured against collapse by pivoted struts b^3, b^4, constructed similarly to the struts *a*, a^1. The spread of the step-ladder is limited by stays C, which may be

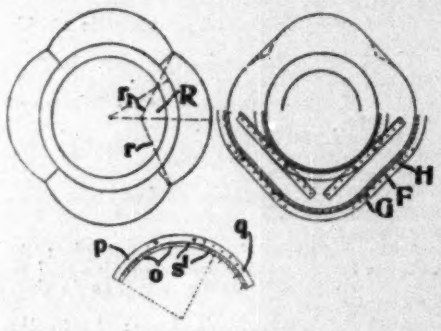


10,778 of 1910.

extensible or consist of two parts hinged together and pivoted to the ladder and back legs.

11,167 of 1910.—Nicolai Frederik Möhl: Moulding concrete chimneys, etc.

This relates to reinforced concrete chimneys, columns, towers, or masts, which are formed tapering and with a non-circular section, by moulds consisting of four segments, which are either cylindrical or cylindrical sections, combined with straight portions, the radius *r* of the cylindrical portions being in all cases less than the radius R of a circumscribing cylinder. Each segment of the mould consists of ring portions *p*, *q*, of angle-iron slidably adjustable on each other, and carrying boards *o* and s^1 respectively. The boards s^1 are removed one at a time as the mould is raised, the mould



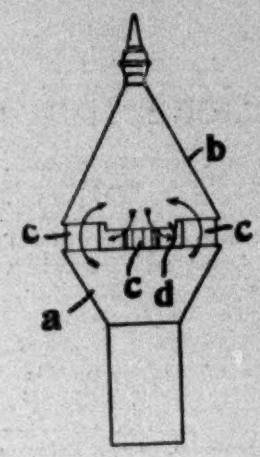
11,167 of 1910.

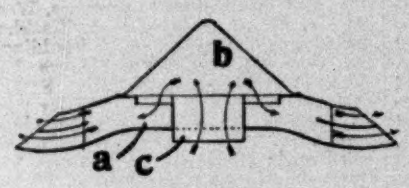
becoming circular at the top of the chimney. In the other mould the removable boards are carried by the straight portions G, H, which are allowed to project as the mould is diminished in size. Internal mouldsa, when such are used, may be made similarly to the external moulds, or constructed of wood, the mould being diminished in size by sawing off the straight portions. The mould segments are secured together by binding-wires or hinges.

11,228 of 1910.—William Herbst: Floors.

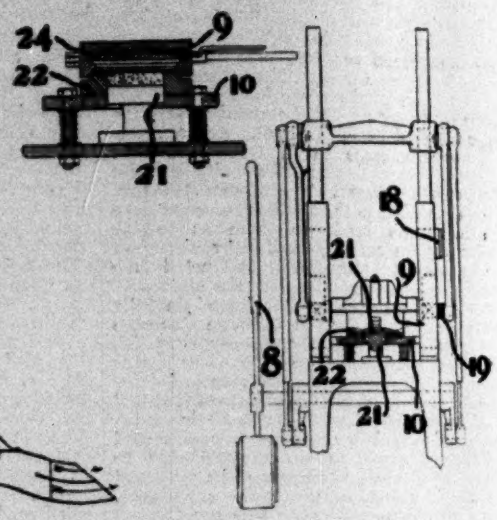
This relates to floors of the type described in Specification No. 10,215/06, wherein the ceiling slabs *c* are supported by the joists instead of by the intermediate cross-pieces *b*,

11,228 of 1910.





10,256 of 1910.



11,237 of 1910.

and the joists between the ceiling slabs are situated under the cross-pieces. The slabs *c* rest on the flanges of the joists, or are suspended therefrom by metal bars, and secured by a layer of concrete.

11,237 of 1910.—André Weill: Moulding tiles.

This relates to means for inverting the mould as it is moved towards or from the moulding-table in apparatus for moulding vitreous ceramic facing-tiles, in which the upper surface of the fluid mass forms the face of the tile. This is effected by means of a rack 18 on the machine frame, and a toothed section 19 on the hinged mould 9. The fluid mass is placed on a die 21 surrounded by a frame 22, carried by a spring-supported moulding-table 10, and on operating a lever 8, the hinged mould 9, carrying a plate 24 for forming the face of the tile, is turned over by the engagement of the section 19 and rack 18, and is forced down into contact with the frame 22. The frame 22 is thereby depressed, and the die 21 remaining stationary, the fluid mass is forced into the mould 9 when the moulding is effected. The mould 9 is raised, and on reaching the end of its stroke is again inverted by the engagement of the section 19 and rack 18.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

September 16.—By HANCOCK & SONS.

Duloe, Cornwall.—The Manor of Lanwarnick Estate, 654 a. 0 r. 34 p., f.	£12,730

By ELWORTHY & SON.

Elm, Cambs.—White House Farm, 217 a. 3 r. 8 p., f.	9,400
Manor lands, 39 a. 2 r. 23 p., f.	1,415

September 19.—By MORRIS, MARSHALL, & POOLE.

Westbury, Salop.—Meadow land, 56 acres, f.	2,660

September 20.—By FRANK LLOYD & SONS.

Poynton, Cheshire.—Poynton Towers and 200 acres, f.	14,439

September 21.—By HANCOCK & SONS.

Tywardreath, Cornwall.—Mount Bennett Farm, 34 a. 3 r. 23 p., f.	1,650
Meadow land, 7 acres, f.	750
Counters Field, 2 a. 1 r. 25 p., f.	180

By MILLAR, SON, & CO.

Cold Aston, Glos.—Three farms, 1,061 acres, f.	14,500
Hawling, Glos.—Slade Barn Farm, 138 acres, f.	1,350
Compton Abdale, Glos.—Hill Barn Farm, 169 a. 2 r. 38 p., f.	1,500

September 22.—By HARRY BALL.

Bedford.—15, Park-rd., f.	185
37 and 39, Howard-ave., f.	800
62, The Grove, f.	700
3a, Shakespeare-rd., f.	700
39, London-rd., f.	290

September 25.—By ERNEST OWERS.

Hampstead.—48, Belsize-pk., u.t. 40 yrs., g.r. 25l.	800

By FRED VARLEY & SON.

Wood Green.—15 and 17, Nightingale-rd., u.t. 76 yrs., g.r. 9l., w.r. 65l. 16s.	180

By WOODS & CO.

Wootton, Northants.—Eight houses and two plots, f.	1,105

September 26.—By H. & R. L. COBB.

Chatham, Kent.—Snodhurst and New Horsted Farms, 540 a. 1 r. 34 p., f.	6,500
18, Manor-rd., f., y.r. 50l.	710
Manor-rd., Elm Cottage, f.	750
Cooling, Kent.—Childs Farm, 85 a. 0 r. 28 p., f.	3,575

By W. M. STICKNEY & SONS.

Dunswell, Yorks.—Two farms, 152 acres, f.	7,400

September 27.—By GILLART & SONS.

Llanwrin, Montgy.—Freehold farms, 545 acres	3,440

By N. EASTON & SON.

Goxhill, Linca.—Freehold farm, 57 acres	£2,670

By CRANSWICK & CRANSWICK.

Bridlington, Yorks.—Grange Farm, 150 acres, f.	7,200
Grass and arable, 112 a. 2 r. 14 p., f.	4,710

By KNIGHT, FRANK, & RUTLEY.

South Hiendley, Yorks.—Hodroyd Estate, 889 acres, f.	19,635

By BAXTER, PAYNE, & LEPPER.

Beckenham, Kent.—10, Westfield-rd., u.t. 91 yrs., g.r. 9l., p.	330

By DONALDSON & SONS.

Enfield.—167, Chase-side (off-license), u.t. 983 yrs., g.r. 10l., y.r. 50l.	430
Dalston.—35, Broke-rd., u.t. 33 yrs., g.r. 4l., e.r. 32l.	130

By DYER, SON, & HILTON.

Blackheath.—32, Kidbrook Park-rd., u.t. 33 yrs., g.r. 7l., p.	220
Brockley.—52, Manor-rd., l.g.r. 7l. 10s., u.t. 49 yrs., g.r. 1l.	95

September 28.—By STANLEY J. BARNES.

Battersea.—165, Battersea Park-rd. (s.), u.t. 51 yrs., g.r. 8l., y.r. 45l.	440
3, Devereux-rd., u.t. 79 yrs., g.r. 10l., e.r. 45l.	380

By JOHN H. BULMER.

Rotherhithe.—161, Abbeyfield-rd., u.t. 43 yrs., g.r. 1l., y.r. 35l.	320
35, Plough-rd., l.g.r. 6l., u.t. 40 yrs., g.r. nil.	75
Woking.—Poole-rd., Weymouth Cottages, f., w.r. 91l.	630
Melrose Cottages and Poultry Farm, 1¼ acres, f.	500

By FISHER, STANHOPE, & CO.

Tottenham.—59 and 61, Ferndale-rd., u.t. 86 yrs., g.r. 10l., w.r. 67l. 12s.	235

By NEWBON & SHEPHARDS.

Islington.—St. Peter-st., f.g. rents 24l., reversion in 34 years	500

By STIMSON & SONS.

Beckenham.—217, 219, and 221, Birkbeck-rd., f., w.r. 84l. 10s.	380
Fulham.—70, Oxberry-av., u.t. 74 yrs., g.r. 6l. 10s., w.r 41l. 12s.	225
Bermondsey.—Six English grounds, f., w.r. 26l.	180
38, Tanner-st., u.t. 16 yrs., g.r. nil, w.r. 26l.	80
Camberwell.—24, Graces-rd., u.t. 47 yrs., g.r. 5l. 10s., y.r. 32l.	180
Norwood.—22 and 24, Auckland Hill, u.t. 51 yrs., g.r. 20l., y. and w.r. 90l. 12s.	250
Penge.—4, Avington-gr., u.t. 51 yrs., g.r. 8l., e.r. 32l.	120
Dacenth.—2 to 28 (even), New-rd., u.t. 67 yrs., g.r. 67l. 1 s., w.r. 201l.	150

September 29.—By VENTOM, BULL, & COOPER.

Eastbourne.—Cavendish Hotel, f. (as a going concern)	45,500

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. for public-house; o. for offices; s. for shops; ct. for court.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom at the prepaid rate of 18s. per annum, with delivery by Friday Morning's Post in London and its suburbs.

To Canada, post-free, 21s. 6d. per annum; and to all parts of Europe, America, Australia, New Zealand, India, China, Cape, etc., 26s. per annum.

Remittances (payable to J. MORGAN) should be addressed to The Publisher of "THE BUILDER," 4, Catherine-street, W.C.

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this Number: Competitions, —; Contracts, iv. vi. viii. x.; Public Appointment, xvii; Auction Sales, xxiv.

Certain conditions beyond those given in the following information are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

*** It must be understood that the following paragraphs are printed as news, and not as advertisement; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur.

Competitions.

OCTOBER 7. — **Barnsley.** — EXTENSION OF BATHS.—The Barnsley T.C. invite drawings for proposed extension of Public Baths. Three premiums are offered—50*l*., 30*l*., 20*l*. See advertisement in issue of August 11 for further particulars.

OCTOBER 7. — **Evesham U.D.C.** — Designs for laying out site and erecting thereon thirty cottages. Particulars from the Clerk to the Council.

OCTOBER 12. — **Armadale.** — Public hall and offices, to cost 2,500*l*. Premiums of 15*l*. and 10*l*. Architects who intend to compete meet Town Council on site at 1.30 on above date (see p. 390).

OCTOBER 12.—**Coseley.**—Plans are invited for a school to accommodate about 200 children. Particulars from the Education Offices, Coseley, near Bilston.

OCTOBER 28. — **Salford.** — Extension of office accommodation on workhouse site at Eccles New-road. Premiums 20*l*. and 10*l*. Particulars from the Board of Guardians, Salford. Limited to architects practising in Salford and district only.

OCTOBER 30.—**Holland.**—STAINED GLASS WINDOW.—Designs are invited for a stained glass window to be erected in the University at Groningen. See advertisement in issue of June 9 for further particulars.

OCTOBER 31. — **Bristol.** — ALTERATIONS IN THE GRAND HOTEL. — Particulars from Mr. F. A. Jenkins, 44, Corn-street, Bristol.

OCTOBER 31. — **Marylebone.** — NEW MUNICIPAL BUILDINGS.—Premiums of 100*l*., 75*l*., 50*l*. The assessor is Mr. Henry T. Hare, F.R.I.B.A. See advertisement in issue of July 14 for further particulars.

NOVEMBER 1. — **City of St. Petersburg.**—MONUMENT TO ALEXANDER II.—Particulars in our issue of August 13, 1910.

NOVEMBER 30.—**Cardiff.**—TECHNICAL INSTITUTE.—The Cardiff Education Committee invite designs and estimates for a technical institute. See advertisement in issue of August 18 for further particulars. Successful architect to carry out work. Premiums of 125*l*., 75*l*., and 50*l*. to other competitors. Mr. J. S. Gibson, assessor.

NOVEMBER 30. — **Hastings.** — EAST SUSSEX HOSPITAL.—The Joint Committee of the East Sussex Hospital and King Edward VII. Memorial Funds invite designs for new hospital. See advertisement in issue of August 25 for further particulars. Premiums of 125*l*., 75*l*., and 50*l*. Mr E. T. Hall, assessor.

DECEMBER 29. — **Glasgow.** — DESIGN FOR A BRIDGE.—Designs are invited (Alexander Thomson Travelling Studentship) for a bridge. Premiums of 60*l*. and 20*l*. are offered. See advertisement in issue of December 24 for further particulars.

JANUARY 1, 1912. — **Rochdale Infirmary.**—EXTENSIONS.—Limited to Rochdale architects. Assessor, Mr. Alex. Graham, F.R.I.B.A.

JANUARY 29, 1912.—**Montevideo.**—Government palace (premiums, 2,125*l*. and 850*l*.) and town improvement scheme (premiums, 1,060*l*., 640*l*., and 425*l*.). Conditions may be seen at the Board of Trade, 73, Basinghall-street, E.C.

JANUARY 31, 1912. — **Australia.** — DESIGNS FOR FEDERAL CAPITAL CITY.—The Government of the Commonwealth of Australia invite competitive designs for the laying out of this Federal capital city. See advertisement in issue of September 1 for further particulars.

JULY 1, 1912.—**Dusseldorf.**—A plan for the extension of the City of Dusseldorf. Premiums of 1,000*l*. to 375*l*. Conditions on application to the Chief Burgomaster, Dusseldorf.

NO DATE. — **Nottingham.** — BAPTIST CHURCH AND PREMISES.—Limited to Nottingham architects. Particulars from Messrs. Rorke & Jackson, solicitors, King-street, Nottingham.

Contracts.

BUILDING.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

OCTOBER 7.—**Ferryhill.**—HOUSES.—Erection of four dwelling-houses, for the Cornforth and Coxhoe Co-operative Society, Ltd. Plans, specifications, at Ferryhill Branch Stores. Mr. Carrick Stokoe, Secretary, Coxhoe.

OCTOBER 7. — **Keighley.**—MILL.—Erection of a spinning mill. Names to Messrs. J. B. Bailey & Son, architects, 3, Scott-street, Keighley.

OCTOBER 7.—**Ramsgate.**—PAVILIONS.—Erection of pavilions on the playing field. Specifications with Mr. A. R. R. Franks, Public Library, Ramsgate.

OCTOBER 7.—**St. Levan.**—SCHOOL.—For alterations and improvements to St. Levan Council School. Mr. Sampson Hill, Architect to the Committee, Green-lane, Redruth.

OCTOBER 7. — **Simprim and Butterlaw.**—COTTAGES.—Erection of five cottages at Simprim, and additions and alterations to cottages at Butterlaw. Plans at the Farm Houses at Simprim and Butterlaw. Messrs. Melrose & Porteous, solicitors, Coldstream.

OCTOBER 9. — **Arklow.** — HOUSES.—Erection of twelve dwelling-houses. Plans by Mr. G. T. Moore, C.E., architect, 1 and 2, Foster-place, Dublin. Deposit of 1*l*. 1s.

OCTOBER 9. — **Barrow-in-Furness.**—SHED, ETC.—Erection of a cart-shed, store, office Quantities from the Borough Engineer.

OCTOBER 9. — **Broadstairs.** — CONVENIENCES.—Construction of public conveniences. Plans and specifications seen, and forms of tender from the Town Surveyor, Mr. H. Hurd, C.E., Council Offices, Broadstairs.

OCTOBER 9. — **Dipton.** — ADDITIONS, ETC.—Additions to the killing shop and new stairs to hall. Drawings and specifications seen, and forms of tender from Mr. C. Thos. Wilson, L.R.I.B.A., architect, 22, Durham-road, Blackhill.

OCTOBER 9.—**Edinburgh.**—CONVENIENCE.—Erection of a public convenience at Sciennes-road. Plans and specifications from the Burgh Engineer, 1, Parliament-square, Edinburgh.

OCTOBER 9.—**Nottingham.**—ALTERATIONS.—For alterations to property in various streets. Plans seen, and secifications and quantities, on deposit of 1*l*. 1s., from Mr. E. B. Lewis, City Architect, Guildhall, Nottingham.

OCTOBER 9. — **St. Helens.** — CONVERSION.—For conversion of sanitary conveniences to the water-carriage system. Specifications from the Chief Inspector of Nuisances, Town Hall, St. Helens.

OCTOBER 10. — **Barrow-in-Furness.** — PARTITIONS.—Erection of two partitions at Thwaite-street Boys' School. Plan seen, and quantities from the Borough Engineer, Town Hall.

* OCTOBER 10.—**Grays.**—INFANTS' SCHOOL.—The Essex Education Committee (Orsett District) invite tenders for infants' school. See advertisement in this issue for further particulars.

OCTOBER 10.—**Newcastle-on-Tyne.**—INN.—Rebuilding of the Fox and Hounds Inn, West Turnpike. Plans seen, and quantities from Messrs. Wm. & T. R. Milburn, FF.R.I.B.A., architects, 4, Mosley-street, Newcastle-on-Tyne.

OCTOBER 11.—**Blackburn.**—URINAL, ETC.—Erection of four water-closets and urinal at the Workhouse. Specifications and forms of tender from Mr. S. J. Lancaster, architect, 4, King-street, Blackburn.

* OCTOBER 11.—**Coventry.**—WARD BLOCK, ETC.—The Coventry and Warwickshire Hospital Committee invite tenders for proposed ward block, operating theatre, etc. See advertisement in this issue for further particulars.

* OCTOBER 11.—**Hammersmith.**—COLD FRAMES.—The Hammersmith B.C. invite tenders for erection at Borough cemetery of a range of cold frames for the propagation of plants. See advertisement in this issue for further particulars.

OCTOBER 11. — **Heversham.**—HOUSE.—Erection of a country house, etc. Plans and specifications and quantities from Mr. Stephen Shaw, F.R.I.B.A., architect, Kendal.

OCTOBER 11. — **London.**—FRAMES.—Erection at the Borough Cemetery of a range of cold frames for the propagation of plants. Plans seen, and form of tender and specification from Mr. H. Mair, Borough Surveyor, Town Hall, Hammersmith, W.

* OCTOBER 11. — **Weybridge.**—TECHNICAL INSTITUTE.—The Surrey Education Committee invite tenders for new technical institute. See advertisement in this issue for further particulars.

OCTOBER 12. — **Dobwalls.**—COTTAGE.—Erection of a cottage. Plans and specification at the Dobwalls Store. Mr. J. R. Toms, Secretary, Liskeard.

OCTOBER 13. — **Grimsby.**—SCHOOL.—For alteration to the Swallow School. Plans and specifications from Mr. G. Allison, architect, Regent House, West Saint Mary's Gate, Grimsby.

* OCTOBER 13.—**Rochford.**—NURSES' AND BABIES' HOMES.—The Rochford Guardians invite tenders for nurses' home and a babies' home at Workhouse. See advertisement in this issue for further particulars.

OCTOBER 14.—**Murton.**—COTTAGES.—Erection of twelve cottages. Plans and specifications with Messrs. C. Johnson & Son, architects and surveyors, Cockton-hill, Bishop Auckland.

OCTOBER 14.—**Quernmore.**—ALTERATIONS.—For alterations to new schools. Plans and specification with Mr. R. E. Jackson, architect, 6, The Arcade, Lancaster.

OCTOBER 16.—**Edinburgh.**—FOUNDATIONS, ETC.—For foundations to barrack and band blocks to Redford, Infantry Barracks, Colinton. Plans, specification, and conditions of contract at the office of the Director of Barrack Construction, 80, Pall-mall, London, S.W., or at the Barrack Construction Office, Colinton, Edinburgh. Quantities, on deposit of 10s., from the Director of Barrack Construction.

OCTOBER 16.—**Felixstowe.**—SCHOOL.—Erection of elementary school. Quantities from the Committee's Surveyor, County Hall, Ipswich. Deposit of 2*l*. 2s. Plans at the Surveyor's Office, County Hall, Ipswich.

OCTOBER 16. — **Harrogate.**—ROOMS, ETC.—The Harrogate Gas Company invite tenders for the erection of new bathrooms, water-closets, and mess-room at the Gasworks, Ripon-road. Specification and quantities from Mr. H. Wilkinson, Secretary and General Manager, Gas Offices, James-street, Harrogate.

OCTOBER 16.—**Saltwood.**—OFFICES.—Erection of new offices. Mr. A. C. Eddis, Correspondent, Saltwood, Hythe.

OCTOBER 17.—**Darras Hall.**—STATION, ETC.—The North-Eastern Railway invite tenders for the erection of a new station, stationmaster's house, and cottages. Plans and specification seen, and quantities from Mr. William Bell, the company's architect, Central Station, Newcastle-on-Tyne.

* OCTOBER 17.—**East Ham.**—SCHOOL.—The East Ham Education Committee invite tenders for Brampton-road School. See advertisement in this issue for further particulars.

OCTOBER 17. — **Edinburgh.** — EXTENSION.—For the extension (second portion) of the laboratory building at the Edinburgh Royal Botanic Gardens. Drawings, specification, and conditions seen, and quantities, on deposit of 1*l*. 1s., from H.M. Office of Works, 3, Parliament-square, Edinburgh.

OCTOBER 17. — **Newport, Mon.** — PIGGERIES.—Erection of new piggeries and repairs at Elm Farm. Plans and specifications at the office of Mr. C. R. Harding, County Land Agent, County Council Offices, Newport, Mon.

OCTOBER 17. — **York.** — STORES. — The North-Eastern Railway invite tenders for the erection of central stores, etc., for hotels department, at York. Plans and specification seen, and quantities from Mr. William Bell, the company's architect, at York.

OCTOBER 18.—**Radyr.**—RESIDENCE.—Erection of a detached villa residence. Plans and specification seen, and quantities, on deposit of 1*l*. 1s., from Mr. W. H. D. Caple, F.R.I.B.A., 2, Church-street, Cardiff.

OCTOBER 19. — **Cullingworth.** — ADDITIONS.—Alterations and additions to the Council school. Plans seen, and specifications and quantities from the Education Architect, County Hall, Wakefield. Deposit of 1*l*.

* OCTOBER 19. — **Letchworth.** — SCHOOL.—The Hertfordshire Education Committee invite tenders for erection and completion of a new school. See advertisement in this issue for further particulars.

* OCTOBER 19. — **London, S.E.** — REBUILDING PARAPET AND WALLS.—The Southwark Guardians invite tenders for rebuilding certain parapet and other walls at Christchurch Workhouse, Gray-street, Waterloo-road, S.E. See advertisement in this issue for further particulars.

OCTOBER 21.—**Brigg.**—EXTENSIONS.—Extensions to the school-house at Brigg Grammar School. Plans and specifications with Mr. George H. Allison, architect, 11, Bigby-street, Brigg. Deposit of 1*l*. 1s.

OCTOBER 21.—**Manchester.**—SCHOOL.—Erection of the George Leigh-street Municipal School, Ancoats. Plans seen, and quantities at the Education Offices, Deansgate, Manchester, on deposit of 2*l*. 2s.

OCTOBER 23.—**Luton.**—BUILDINGS.—Erection of a block of buildings for women's infirmary and nurses' home at the Workhouse. Plans and specifications by Messrs. Gotch & Saunders, architects, Kettering. Quantities on deposit of 1*l*. 1s.

* OCTOBER 24. — **Winchester.** — SCHOOL.—The Winchester Corporation invite tenders for new elementary school on the Danemark Estate. See advertisement in this issue for further particulars.

OCTOBER 26. — **London.**—ADDITIONS.—Erection of additions to the nurses' home at Infirmary, Whipp's Cross-road, Leytonstone, N.E. Mr. F. J. Sturdy, F.R.I.B.A., 45, Finsbury-pavement, E.C. Deposit of 5*l*.

* OCTOBER 31. — **Erith.** — ENGINE-HOUSE, ETC.—The London C.C. invite tenders for additional engine-house, etc., at Southern Outfall Works, Crossness. See advertisement in this issue for further particulars.

OCTOBER 31. — **Leigh-on-Sea.**—SCHOOL.—Erection of a school. Quantities, on deposit of 2*l*. 2s., from the architect, Mr. P. Brockbank, 14 and 15, County-chambers, Southend-on-Sea.

BUILDING—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

* NOVEMBER 6.—**Tunbridge Wells.**—SCHOOL.—The Kent Education Committee invite tenders for new county school for girls. See advertisement in this issue for further particulars.

NO DATE.—**Corby.**—WORKS.—For the work at Hill House, Corby. Plans, specifications, and quantities from Mr. T. Taylor Scott, F.R.I.B.A., architect and surveyor, 38, Lowther-street, Carlisle.

NO DATE. — **Exmouth.** — ALTERATIONS.—For alterations and new shop front in Exeter-road. Names to Mr. E. E. Ellis, architect, Exmouth.

NO DATE. — **Newport, Mon.** — STORES, ETC.—Erection of extensions to bottling stores and stables at the Anchor Brewery. Quantities, on deposit of 2*l.* 2s., from Messrs. Swalwell & Havard, architects and surveyors, 202, Dock-street, Newport, Mon.

NO DATE.—**Rochdale.**—ROOMS, ETC.—Erection of porches, bathrooms, and alterations at the Workhouse. Mr. R. A. Leach, Union Clerk, Union Offices, Townhead, Rochdale.

NO DATE. — **Weybridge.**—INSTITUTE.—Erection of a technical institute. Drawings and conditions of contract with the architects, Messrs. Jarvis & Richards, 10, Queen Anne's-gate, Westminster, S.W. Quantities on deposit of 2*l.* 2s.

ENGINEERING, IRON, AND STEEL.

OCTOBER 11. — **Camelford.**—WATERWORKS.—For various works in connexion with the Waterworks. Plans with Mr. T. T. Gilbart, Fore-street, Camelford. Specifications from Mr. G. H. Harris, Engineer, Wadebridge. Deposit of 2*l.* 2s.

* OCTOBER 11.—**Hammersmith.**—FENCING AND GATES.—The Hammersmith B.C. invite tenders for wrought-iron boundary fencing and gates for children's playing ground at Wormholt Park. See advertisement in this issue for further particulars.

OCTOBER 11. — **Stoke-upon-Trent.**—HEATING.—For installation of hot-water service and heating apparatus for the operating theatre at the Union Workhouse. Consulting engineers, Messrs. Edwards & Shaw, Colmore-row, Birmingham.

OCTOBER 13.—**Bradninch.**—BRIDGEWORK.—For building a new concrete sill, new concrete floor, and other general repairs at the Hele Bridge. Specification at the office of the Council, at the Castle, Exeter. Mr. H. Michelmore, Clerk of the Council, Castle, Exeter.

OCTOBER 14.—**Milford.**—WATERWORKS.—Repairing the Rathmullen Waterworks. Plans and specifications by Mr. J. J. S. Barnhill, A.M.Inst.C.E., Baltic-buildings, Foyle-street, Londonderry.

NO DATE. — **Tilbury.** — HEATING.—For heating the "Passmore Edwards" District Cottage Hospital. Plans with the architect, Mr. C. M. Shiner, A.R.I.B.A., 10, Duke-street, Adelphi, W.C.

FURNITURE, PAINTING, MATERIALS, etc.

OCTOBER 6.—**Pentre.**—PAINTING.—For painting and decorating English Wesleyan Chapel. Specification with Mr. W. D. Morgan, M.S.A., architect, 194, Ystrad-road, Pentre.

OCTOBER 7.—**Sunderland.**—PAINTING.—For repairs and painting of Nos. 41 and 42, Low-street, and exterior painting of No. 89, Low-street. Specification seen, and form of tender from the Borough Surveyor, Town Hall.

OCTOBER 9. — **Belfast.** — PLUMBING.—For the plumbing work in the administration block at the new abattoir, Stewart-street. Plans seen, and specification from the City Surveyor on deposit of 1*l.* 1s.

OCTOBER 9.—**Halifax.**—PAINTING.—For painting and colouring at Belle Vue Library. Specifications seen, and forms of tender from Mr. James Lord, M.Inst.C.E., Borough Engineer, Town Hall, Halifax. Deposit of 1*l.*

OCTOBER 9.—**Halifax.**—PAINTING.—For the outside painting of shops in Market-street, Russell-street, and Old Market; also, for lime-washing the slaughter-houses, market hall, etc. Specifications and forms of tender from Mr. James Lord, M.Inst.C.E., Borough Engineer, Town Hall, Halifax. Deposit of 1*l.*

OCTOBER 9.—**New Tredegar.**—PAINTING.—For renovating and painting Queen's Hotel. Mr. G. Kenshole, M.S.A., Bargoed.

OCTOBER 10.—**Exeter.**—PAINTING.—For painting at the Workhouse and Higher and Lower Summerlands. Specifications from the architect, Mr. R. M. Challice, 14, Bedford-circus, Exeter.

OCTOBER 10. — **Hastings.** — PAINTING. — For painting four cottages. Specification and form of tender from the Borough Engineer, Mr. P. H. Palmer, M.Inst.C.E., Town Hall, Hastings.

OCTOBER 10. — **Plymouth.** — FITTINGS, ETC.—Alteration and refixing old fittings, etc., and fixing new fittings, tables, etc., in the laundry at the Workhouse. Architects, Messrs. Thornely, Rooke, & Barron, 11, The Crescent, Plymouth.

OCTOBER 11. — **London.** — FENCING.—Supplying and fixing wrought-iron boundary fencing and gates for Children's Playing Ground at Wormholt Park, Hammersmith. Plans seen, and form of tender and specification from Mr. H. Mair, Borough Surveyor, Town Hall, Hammersmith, W.

OCTOBER 12. — **Devonport.**—RENOVATING.—For renovating the Board-room at the Workhouse. Specifications at the Workhouse.

OCTOBER 14. — **Caistor.** — PAINTING, ETC.—Repairs, painting, distempering, etc., of interior and exterior of the Public Hall. Specifications from Mr. Charles Ainger, Secretary, Caistor, Lincs.

OCTOBER 18.—**Burnley.**—PAINTING.—For painting exterior of the Union Offices. Mr. J. S. Horn, Clerk.

OCTOBER 18. — **Stockton-on-Tees.**—PAINTING.—For painting at the elementary schools. Specification at the Borough Engineer's Office. Mr. M. H. Sykes, Borough Engineer, Town Hall, Stockton-on-Tees.

* OCTOBER 19.—**Stepney.**—PAINTING AND REPAIRING.—The Stepney Guardians invite tenders for exterior painting and repairing works at the Workhouse. See advertisement in this issue for further particulars.

ROADS, SANITARY AND WATER WORKS.

OCTOBER 9. — **Ilford.** — ROAD.—For making-up Station-road. Plans and specification seen, and quantities from Mr. H. Shaw, M.Inst.C.E., Engineer and Surveyor to the Council, on deposit of 2*l.* 2s., Town Hall, Ilford.

OCTOBER 9. — **Shrewsbury.** — STREETS.—For paving and flagging private streets. Drawings at the City Engineer's Office, Municipal Buildings. Forms of tender and quantities at the Highways Office, 155, Kirkstall-road, Leeds.

OCTOBER 10. — **Preston.** — MATERIALS. — For supply of materials. Forms of tender from Mr. W. H. Schofield, County Surveyor, County Offices, Preston.

OCTOBER 11. — **Birkenhead.** — STREETS.—For various street works. Plans and specification seen, and quantities from Mr. C. Brownridge, M.Inst.C.E., Borough Engineer and Surveyor, Town Hall, Birkenhead. Deposit of 10s.

OCTOBER 11.—**Wembley.**—ROAD.—For making up of Dagmar-avenue and Linden-avenue. Drawings and specifications with Mr. Cecil R. W. Chapman, the Surveyor to the Council, Public Offices, Wembley.

OCTOBER 12. — **Torridon.**—ROAD.—Construction of a road through the township of Diabeg. Plan and specification with Mr. John Macpherson, County Councillor, Diabeg. Mr. John Mackenzie, Road Surveyor, Strath, Gairloch.

OCTOBER 13.—**Alton.**—MATERIALS.—For supply of materials. Forms of tender from Mr. W. H. Trimmer, Clerk, Town Hall, Alton.

OCTOBER 14.—**Prenton.**—ROAD.—For making Waterpark-road. Plans, sections, and specification seen, and quantities from the Surveyor, "Ashville," Pole Hill-road, Heswall. Deposit 10s.

OCTOBER 17. — **Hoddesdon.** — DRAINAGE.—For construction of 9-in. stoneware pipes surface water drain. Plans and specifications seen, and forms of tender from Mr. W. H. Flood, the Surveyor to the Council, High-street, Hoddesdon.

OCTOBER 19.—**Mitcham.**—ROAD.—For making up Oakwood-avenue. Plans and specification by the Council Surveyor, Mr. R. M. Chart, F.S.I., Katharine-street, Croydon. Deposit of 1*l.*

OCTOBER 27. — **Lichfield.** — SEWERS.—Construction of sewers, with disposal works. Drawings seen, and specification, quantities, and form of tender, on deposit of 3*l.* 3s., from Mr. W. H. Chancellor, City Engineer, City Engineer's Office, Stowe-street, Lichfield

NOVEMBER 1. — **Ebbw Vale.** — SEWERAGE.—For laying stoneware, cast-iron, and steel pipe sewers. Plans and drawings seen, and specification from Mr. T. J. Thomas, Town Engineer and Surveyor. Deposit of 5*l.*

NOVEMBER 6.—**Barnet.**—SEWERAGE, ETC.—For construction of sewers, engine-house, etc. Specification and drawings with Mr. W. Fairley, M.Inst.C.E., Parliament-mansions, Victoria-street, Westminster. Quantities on deposit of 3*l.* 3s.

NO DATE. — **Birdhope Crag.**—STONE.—Supply of broken stone, etc., for road-making at the Artillery Camp at Birdhope Crag. Forms of tender and specification from Commanding Royal Engineer, 13, Belle Grove-terrace, Newcastle-on-Tyne.

Public Appointment.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*LECTURER ON LAW OF DILAPIDATNS., EASEMTS., ETC.	London C.C.	See advertisement in this issue	Oct. 16

Auction Sales.

Nature and Place of Sale.	By whom Offered.	Date of Sale.
*ARTIFICIAL MARBLE—On the Premises	J. Odell & Co.	Oct. 9
*BUILDING MATERIALS, SOUTH NORWOOD—On the Premises	Hooker & Webb	Oct. 10
*DEALS, BATTENS, BOARDS, TIMBER, ETC.—Great Hall, Winchester House, E.C.	Churchill & Sim	Oct. 11
*KURSAAL SITE (FREEHOLD), MARGATE—White Hart Hotel, Margate	J. Reeve & Son	Oct. 16
*NURSERY STOCK, SOUTH WOODFORD—On the Premises	Protheroe & Morris	Oct. 17
*FREEHOLD BUILDING SITE, GT. ST. HELEN'S, E.C.—At the Mart	Edwin Fox, Bousfield, Burnetts, & Baddeley	Oct. 18
*FREEHOLD PROPERTY, HARROW WEALD—At the Mart	Edwin Fox, Bousfield, Burnetts, & Baddeley	Oct. 18
*FREEHOLD FACTORY PREMISES, LEYTON—At the Mart	Edwin Fox, Bousfield, Burnetts, & Baddeley	Nov. 1
*FREEHOLD BUILDING LAND, FULHAM—Estate Room, 20, Hanover-square, W.	Knight, Frank, & Rutley	Nov. 8

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

Per 1000 Alongside, in River.

	£ s. d.
Best Stocks	1 13 0
Picked Stocks for Facings	2 7 0

Per 1000, Delivered at Railway Depôt.

	£ s. d.		£ s. d.
Flettons	1 9 0	Best Stourbridge Fire Bricks	3 14 0
Best Fareham Red	3 12 0	GLAZED BRICKS.	
Best Red Pressed Ruabon Facing	5 0 0	Best White and Ivory Glazed Stretchers	10 17 6
Best Blue Pressed Staffordshire	3 15 0	Headers	10 7 6
Do. Bullnose	4 0 0	Quoins, Bullnose, and Flats	14 7 6

BRICKS, &c. (*Continued*).

Per 1000, Delivered at Railway Depôt.

	£ s. d.		£ s. d.
D'ble Stretchers	16 7 6	Quoins, Bullnose, and Flats	14 7 6
Double Headers	13 7 6	D'ble Stretchers	16 7 6
One Side and two Ends	17 7 6	Double Headers	13 7 6
Two Sides and one End	18 7 6	One Side and two Ends	17 7 6
Splays & Squints	15 17 6	Two Sides and one End	18 7 6
Best Dipped Salt Glzd. Str'tch'rs	10 17 6	Splays & Squints	15 17 6
Headers	10 7 6		

Second Quality White and Dipped Salt Glazed, £1 5s. per 1000 less than best.

	s. d.	
Thames and Pit Sand	6 9	per yard, delivered.
Thames Ballast	5 3	" "
Best Portland Cement	29 0	per ton, "
Best Ground Blue Lias Lime	19 6	" "

NOTE—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 12s. 6d. per yard delivered.
Stourbridge Fireclay in sacks 27s. 6d. per ton at rly dpt.

STONE.

Per Ft. Cube.

	s. d.
BATH STONE — delivered on road waggons, Paddington Depôt	1
Do. do. delivered on road waggons, Nine Elms Depôt	1
PORTLAND STONE (20 ft. average)—	
Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2
White Basebed, delivered on road waggons Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2

Per Ft. Cube, delivered at Railway Depôt.

	s. d.		s.
Ancaster in blocks	1 10	Closeburn Red Freestone	2
Beer in blocks	1 6	Red Mansfield Freestone	2
Greenshill in blocks	1 10	Talacre & Gwespyr Stone	2
Darley Dale in blocks	2 4		
Red Corsehill in blocks	3		

STONE (*Continued*).

YORK STONE—*Robin Hood Quality.*	Per Ft. Cube, Delivered at Railway Depôt.	s.	d.
Scappled random blocks		2	10
	Per Ft. Super., Delivered at Railway Depôt.		
6 in. sawn two sides landings to sizes (under 40 ft. super.)		2	3
6 in. rubbed two sides ditto, ditto		2	6
3 in. sawn two sides slabs (random sizes)		0	11½
2 in. to 2½ in. sawn one side slabs (random sizes)		0	7
1¼ in. to 2 in. ditto, ditto		0	6
HARD YORK—	Per Ft. Cube, Delivered at Railway Depôt.		
Scappled random blocks		3	0
	Per Ft. Super., Delivered at Railway Depôt.		
6 in. sawn two sides landing to sizes (under 40 ft. super.)		2	8
6 in. rubbed two sides ditto		3	0
3 in. sawn two sides slabs (random sizes)		1	2
2 in. self-faced random flags		0	5

SLATES.

Per 1000 of 1200 at Railway Depôt.

In. In.	£	s.	d.	In. In.	£	s.	d.
20×10 best blue Bangor	13	2	6	20×10 best Eur'ka unfading green	15	17	6
20×12 ditto	13	17	6	20×12 ditto	18	7	6
20×10 1st quality ditto	13	0	0	18×10 ditto	13	5	0
20×12 ditto	13	15	0	16×8 ditto	10	5	0
16×8 ditto	7	5	0	20×10 permanent green	11	12	6
22×10 best blue Portmadoc	12	12	6	18×10 ditto	9	12	6
16×8 ditto	6	12	6	16×8 ditto	6	12	6

TILES.

At Railway Depôt.

	s.	d.		s.	d.
Best plain red roofing (per 1000)	42	0	Best "Hartshill" brand, plain sand-faced (per 1000)	50	0
Hip and Valley (per doz.)	3	7	Do. pressed (per 1000)	47	6
Best Broseley (per 1000)	50	0	Do. Ornamental (per 1000)	50	0
Do. Ornamental (per 1000)	52	6	Hip (per doz.)	4	0
Hip and Valley (per doz.)	4	0	Valley (per doz.)	3	6
Best Ruabon red, brown, or brindled (Edw'ds) (per 1000)	57	6	Staffords. (Hanley) Reds or Brindled (per 1000)	42	6
Do. Ornamental (per 1000)	60	0	Hand-made sand-faced (per 1000)	45	0
Hip (per doz.)	4	0	Hip (per doz.)	4	0
Valley (per doz.)	3	0	Valley (per doz.)	3	6

WOOD.

BUILDING WOOD.	At per standard.	£	s.	d.		£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.		14	0	0	...	15	10	0
Deals: best 3 by 9		13	10	0	...	14	10	0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.		11	10	0	...	12	10	0
Battens: best 2½ by 6 and 3 by 6		0	10	0	less than 7 in. and 8 in.			
Deals: seconds		1	0	0	less than best.			
Battens: seconds		0	10	0	"		"	
2 in. by in. and 2 in. by 6 in.		9	10	0	...	10	10	0
2 in. by 4½ in. and 2 in. by 5 in.		9	0	0	...	10	0	0
Foreign Sawn Boards—								
1 in. and 1½ in. by 7 in.		0	10	0	more than battens.			
½ in.		1	0	0	"			
Fir timber: best middling Danzig or Memel (average specification)	At per load of 50 ft.	5	0	0	...	5	10	0
Seconds		4	10	0	...	5	0	0
Small timber (8 in. to 10 in.)		3	17	6	...	4	0	0
Small timber (6 in. to 8 in.)		3	5	0	...	3	10	0
Swedish balks		2	12	6	...	3	0	0
Pitch-pine timber (30 ft. average)		4	10	0	...	5	5	0
JOINERS' WOOD.	At per standard.							
White Sea: first yellow deals, 3 in. by 11 in.		24	10	0	...	25	10	0
3 in. by 9 in.		22	10	0	...	23	10	0
Battens, 2½ in. and 3 in. by 7 in.		17	0	0	...	18	0	0
Second yellow deals, 3in. by 11in.		19	0	0	...	20	0	0
" " 3 in. by 9 in.		18	0	0	...	19	10	0
Battens, 2½ in. and 3in. by 7 in.		14	0	0	...	15	0	0
Third yellow deals, 3 in. by 11 in. and 9 in.		14	0	0	...	15	0	0
Battens, 2½ in. and 3 in. by 7 in.		11	10	0	...	12	10	0
Petersburg: first yellow deals, 3 in. by 11 in.		21	10	0	...	22	10	0
Do. 3 in. by 9 in.		18	10	0	...	19	10	0
Battens		14	0	0	...	15	0	0
Second yellow deals, 3 in. by 11 in		16	10	0	...	17	10	0
Do. 3 in. by 9 in.		15	0	0	...	16	0	0
Battens		11	10	0	...	12	10	0
Third yellow deals, 3in. by 11 in.		13	10	0	...	14	10	0
Do. 3 in. by 9 in.		13	0	0	...	14	0	0
Battens		10	10	0	...	11	0	0
White Sea and Petersburg—								
First white deals, 3 in. by 11 in.		15	0	0	...	16	0	0
" " 3 in. by 9 in.		14	0	0	...	14	10	0
Battens		11	10	0	...	12	10	0
Second white deals, 3in. by 11in.		14	0	0	...	15	0	0
" " 3 in. by 9 in.		13	0	0	...	14	0	0
Battens		10	10	0	...	11	0	0
Pitch-pine: deals		19	0	0	...	21	0	0
Under 2 in. thick extra		0	10	0	...	1	0	0
Yellow Pine—First, regular sizes		44	0	0	upwards.			
Oddments		32	0	0	"			
Seconds, regular sizes		33	0	0	"			
Oddments		28	0	0	"			
Kauri Pine—Planks per ft. cube		0	3	6	...	0	5	0
Dantzig and Stettin Oak Logs— Large, per ft. cube		0	3	0	...	0	3	9
Small " "		0	2	6	...	0	2	6
Wainscot Oak Logs, per ft. cube		0	5	6	...	0	6	0
Dry Wainscot Oak, per ft. sup. as inch		0	0	8½	...	0	0	9½
½ in. do. do.		0	0	7	...		—	
Dry Mahogany—Houndras, Tabasco, per ft. super. as inch		0	0	10	...	0	1	1
Selected, Figury, per ft. super. as inch		0	1	6	...	0	2	6

WOOD (*Continued*).

JOINERS' WOOD (*Continued*)—	£	s.	d.		£	s.	d.
Dry Walnut, American, per ft. super. as inch	0	0	10	...	0	1	0
Teak, per load	18	0	0	...	22	0	0
American Whitewood planks, per ft. cube	0	4	0	..	0	5	0
Prepared Flooring, etc.—	Per square.						
1 in. by 7 in. yellow, planed and shot	0	13	6	...	0	17	0
1 in. by 7 in. yellow, planed and matched	0	14	0	...	0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	16	0	...	1	0	0
1 in. by 7 in. white, planed and shot	0	12	0	...	0	14	6
1 in. by 7 in. white, planed and matched	0	12	6	...	0	15	0
1¼ in. by 7 in. white, planed and matched	0	15	0	...	0	16	6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0	11	0	...	0	13	6
1 in. by 7 in. " "	0	14	0	...	0	18	6
¾ in. by 7 in. white " "	0	10	0	...	0	11	0
1 in. by 7 in. " "	0	12	9	...	0	15	0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £	s.	d.		£	s.	d.
Rolled Steel Joists, ordinary sections	7	10	0	...	8	0	0
Compound Girders, ordinary sections	9	10	0	...	10	0	0
Steel Compound Stanchions	11	0	0	...	12	0	0
Angles, Tees, and Channels, ordinary sections	9	10	0	...	10	0	0
Flitch Plates	9	10	0	...	9	10	0
Cast Iron Columns & Stanchions, including ordinary patterns	7	10	0	...	8	10	0

METALS.

IRON—	Per ton, in London. £	s.	d.		£	s.	d.
Common Bars	8	10	0	...	9	0	0
Staffordshire Crown Bars, good merchant quality	8	15	0	...	9	5	0
Staffordshire "Marked Bars"	10	10	0	...	—		
Mild Steel Bars	8	15	0	...	9	5	0
Hoop Iron, basis price	9	5	0	...	9	10	0
" " Galvanised	17	0	0	...	—		
(*And upwards, according to size and gauge.)							
Sheet Iron Black—							
Ordinary sizes to 20 g.	9	15	0	...	—		
" " 24 g.	10	15	0	...	—		
" " 26 g.	12	5	0	...	—		
Sheet Iron, Galvanised, flat, ordinary quality—							
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15	0	0	...	—		
Ordinary sizes to 22 g. and 24 g.	15	10	0	...	—		
" " 26 g.	16	10	0	...	—		
Sheet Iron, Galvanised, flat, best quality—							
Ordinary sizes to 20 g.	18	0	0	...	—		
" " 22 g. and 24 g.	18	10	0	...	—		
" " 26 g.	20	0	0	...	—		
Galvanised Corrugated Sheets—							
Ordinary sizes, 6ft. to 8ft. 20 g.	14	10	0	...	—		
" " 22 g. and 24 g.	14	15	0	...	—		
" " 26 g.	16	5	0	...	—		
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	12	0	0	...	—		
Best Soft Steel Sheets, 2 g. & 24 g.	13	0	0	...	—		
" " " 26 g.	15	0	0	...	—		
Cut Nails, 3 in. to 6 in.	10	10	0	...	11	0	0

(Under 3 in., usual trade extras.)

LEAD, &c.

	£	s.	d.		
LEAD—Sheet, English, 4lb. and up	18	15	0	...	—
Pipe in coils	19	5	0	...	—
Soil pipe	22	5	0	...	—
Compo pipe	22	5	0	...	—
ZINC—Sheet—	In casks of 10 cwt.				
Vielle Montagne	34	10	0	...	—
Silesian	33	15	0	...	—
Zinc, in bundles, 1s. per cwt. extra.					
COPPER—					
Strong Sheet per lb.	0	1	0	...	—
Thin " "	0	1	1	...	—
Copper nails "	0	0	10	...	—
Copper wire "	0	0	10	...	—
BRASS—					
Strong Sheet "	0	0	11	...	—
Thin "	0	1	0	...	—
TIN—English Ingots "	0	1	10	...	—
SOLDER—Plumbers' "	0	0	8½	...	—
Tinmen's "	0	0	11	...	—
Blowpipe "	0	1	2	...	—

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.*

Per Ft., Delivered.

15 oz. thirds	2¼d.	26 oz. fourths	3½d.
" fourths	1¾d.	32 oz. thirds	3d.
21 oz. thirds	3d.	" fourths	4½d.
" fourths	2½d.	Fluted Sheet, 15 oz.	3½d.
26 oz. thirds	4d.	" 21 oz.	4½d.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.*

Per Ft., Delivered.

⅛ Hartley's	2d.	Figured Rolled, Oxford Rolled, Oceanic, Arctic, Muffled, and Rolled Cathedral, white	3½d.
¼ "	2¼d.	Ditto, tinted	5d.
⅜ "	2½d.		

Not less than three crates.

OILS, &c.

		£	s.	d.
Raw Linseed Oil in pipes	per gallon	0	3	8
" " " in barrels	"	0	3	9
" " " in drums	"	0	3	11
Boiled " in barrels	"	0	3	11
" " " in drums	"	0	4	2
Turpentine in barrels	"	0	3	3
" in drums	"	0	3	5
Genuine Ground English White Lead, per ton		24	10	0
Red Lead, Dry	"	22	10	0
Best Linseed Oil Putty	per cwt.	0	11	0
Stockholm Tar	per barrel	1	12	0

VARNISHES, &c.

	Per gallon. £	s.	d.
Fine Pale Oak Varnish	0	8	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of Churches	0	14	6
Fine Elastic Carriage	0	12	0
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	10	0
Finest Pale Durable Copal	0	18	0
Extra Pale French Oil	1	1	0
Eggshell Flating Varnish	0	12	0
White Pale Enamel	1	4	0
Extra Pale Paper	0	12	0
Best Japan Gold Size	0	10	6
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	0
Berlin Black	0	16	0
Knotting	0	10	9
French and Brush Polish	0	10	6

TO CORRESPONDENTS.

NOTE.—All communications with respect to literary and artistic matters should be addressed to "THE EDITOR" (and not to any person by name); those relating to advertisements and other exclusively business matters should be addressed to "THE PUBLISHER," and not to the Editor.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

All drawings sent to or left at this office for consideration should bear the owner's name and address on either the face or back of the drawing. Delay and inconvenience may result from inattention to this.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

N.B.—Illustrations of the First Premiated Design in any important architectural competition will always be accepted for publication by the Editor, whether they have been formally asked for or not.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 a.m. *on Thursday*. [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.* unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

AYLESBURY.—For erection of a domestic science building. Mr. F. Taylor, architect, Bourbon-street, Aylesbury:—

Mayne & Son	£286	F. Hill	£209
Webster & Cannon	258	W. G. Ellis, Aylesbury*	189
J. H. Holland	252		

AYLESBURY.—For decorating, sanitary, and other work to "The Grove," Grendon Underwood, Bucks, for the Aylesbury Guardians. Mr. F. Taylor, architect, 7, Bourbon-street, Aylesbury:—

Mayne & Son	£225 0	H. W. Ricketts	£179 15
Cripps & Sons	213 0	Merrick & Hyde	149 0
J. H. Holland	201 0	R. J. Thorne, Bierton*	147 0
T. Ward	200 0		

BADBY.—For erection of a public elementary school. Mr. J. T. Blackwell, architect, 53, High-street, Kettering:—

Lewin & Son	£1,441 0	E. Archer & Sons, Ltd.	£1,197 0
T. Adams & Son	1,375 0	Beardsmore & West	1,188 0
T. Higgs	1,287 0	Holland & Marks	1,179 17
E. Green	1,287 0	W. W. Webster	1,175 0
R. Love & Co.	1,234 0	Smith & Bunning, Kettering	1,138 0
W. Higgins	1,217 0		
T. Hickman & Sons	1,210 17		

BARNES.—For wood-paving Church-road and Rocks-lane, for the Urban District Council:—

Church-road.

T. Cook, Starkey, & Co.	£1,582 19 2
W. Griffiths & Co.	1,382 15 0
J. Mowlem & Co.	1,366 0 0
G. Wimpey & Co.	1,352 14 2
T. Wood & Sons	1,334 13 4
Acme Flooring and Paving Co., Ltd.	1,273 9 2
Improved Wood Pavement Co., Ltd., 46, Queen Victoria-street, E.C.*	1,106 16 0

Rocks-lane.

T. Cook, Starkey, & Co.	£2,583 9 9
T. Wood & Sons	2,246 1 8
G. Wimpey & Co.	2,186 5 6
J. Mowlem & Co.	2,090 0 0
W. Griffiths & Co	2,040 11 5
Acme Flooring and Paving Co., Ltd.	2,023 2 2
Improved Wood Pavement Co., Ltd., 46, Queen Victoria-street, E.C.*	1,900 9 8

BIRMINGHAM.—For erection of two homes for infants at the Cottage Homes, Marston Green, for the Birmingham Board of Guardians. Messrs. C. Whitwell & Son, architects, Birmingham :—

W. Bishop	£3,284 0	J. Holyoak & Son	£2,992 0
T. Elvins & Sons	3,265 0	F. H. Smith	2,956 0
J. Barnsley & Sons	3,218 0	H. Taylor	2,936 12
H. Morgan	3,211 0	J. A. Turton	2,926 0
A. C. Hughes	3,207 0	E. Crowder	2,877 0
T. Johnson	3,117 0	S. F. Swift	2,851 12
B. Whitehouse & Sons	3,023 0	P.W. Cox, Handsworth*	2,840 0
S. E. Cox & Co.	3,000 0		

CHIPSTEAD.—For alterations and additions to Rock House, Chipstead, for the Sevenoaks Board of Guardians :—

R. A. Lowe	£809 0 0	Bailey, Parkins, & Goates	£668 0 0
Crossley & Son	808 0 0	J. Heath	667 5 10
Myall Bros.	765 0 0	North Downs Building Co.	660 15 0
R. Tong	750 0 0	W. J. Zealey, Sevenoaks*	630 0 0
G. Basset	745 0 0		
P. Banks	687 0 0		
C. Bentley	684 0 0		
A. Tye	682 0 0		

CREWKERNE.—For alterations and additions at "Racedown," Dorset, for Colonel R. J. Pinney. Mr. A. Blomfield Jackson, F.R.I.B.A., architect, 3, New-square, Lincoln's Inn, W.C. :—
W. Caddy & Sons, Lyme Regis* £2,367 16 2

FARNHAM.—For additions to the maternity ward, and construction of an iron emergency staircase, for the Guardians :—

Mardon & Mills	£1,338 10	W. J. Snuggs	£1,124 0
Martin & Wells	1,275 0	Adams, Alton*	1,081 15
Crosby & Co.	1,230 0		

FERRYHILL (Durham).—For erection of an Independent Methodist Church at Dean Bank, Ferryhill. Mr. J. R. Grossart, architect, Durham-road, Finden Hill, Sacriston :—

Salkeld	£745 10 0	Thompson & Dennison, Blandford-street, Sutherland*	£580 10 0
L. Rowe	586 5 0		
T. Hilton	580 12 6		

GUILDFORD.—For the erection of motor factory No. 3 at Woodbridge, Guildford, for Messrs. Dennis Bros., Ltd. Messrs. Clemence & Moon, architects, Bank House, Guildford :—
W. Harbrow, South Bermondsey Station, S.E.* £9,984
[Twelve tenders received.]

HAROLD WOOD.—For erection of new dormitory buildings at the Grange, for the West Ham Town Council :—

Clemens Bros.	£2,270 18 7	J. W. Jerram	£1,840 0 0
Brown Bros.	2,207 0 0	F. Willmott	1,787 10 0
S. E. Moss	2,000 0 0	A. E. Symes	1,777 0 0
Myall & Upson	1,960 0 0	J. S. Hammond & Son	1,706 0 0
J. W. Maddison	1,874 0 0	A. H. Fryd, Southend-on-Sea*	1,695 0 0
Davey & Armitage	1,857 0 0		
H. J. Carter, Ltd.	1,840 0 0		

HENDON, N.W.—For an extension of factory at Leatherville, Colindale-avenue, Hendon, N.W., for Messrs. A. Garstin & Co., Ltd. Messrs. Coleman & Holmes, architects, 5, Rosemont-terrace, High-road, North Finchley, N. :—

C. B. Price	£1,857	Bate Bros.	£1,741
C. P. Roberts & Co.	1,796	W. H. T. Kelland*	1,733
McCormick & Sons, Ltd.	1,771	R. J. Smerdon	1,725

KINCRAIG.—For erection of a manse at Alvie, for the U.F. Church of Scotland. Mr. A. Cattanach, architect, Kincraig, Scotland :—

Mason: J. S. MacPherson, Kingussie, N.B.	£306 2
Joiner: D. Grant, Kingussie, N.B.	348 11
Plumber: W. Urquhart, Kingussie, N.B.	93 5
Slater: J. Reid, Kingussie, N.B.	34 15
Plasterers: J. & W. Stuart, Grantown-on-Spey	55 19
Painter: K. Chisholm, Inverness	18 10

LONDON.—For the erection of two sanitary conveniences at Barnes, for the Urban District Council. Mr. G. B. James, A.M.I.C.E., surveyor, High-street, Mortlake :—

H. King & Sons	£646	F. W. Hampton	£570
Jarman & Co.	595	W. Lowe	536
Stourbridge Glazed Brick and Fireclay Co.	570	R. T. Hughes & Co., Ltd., Mortlake, S.W.*	495

LONDON.—For rebuilding premises, No. 24, Conduit-street, W., for Emile et Cie. Mr. A. Blomfield Jackson, F.R.I.B.A., architect, 3, New-square, Lincoln's Inn, W.C. :—

J. W. Falkner & Sons	£5,223
Patman & Fotheringham, Ltd.	5,183
H. & E. Lea†	5,099

LONDON, S.E.—For repairs, redecoration, and improvement of the sanitary arrangements at the Town Hall, for the Greenwich Borough Council :—

G. Usher	£230 0 0	F. J. Gorham	£169 15 0
J. Hocking & Co.	207 0 0	G. Redgrove	155 18 6
E. Mills	189 0 0	H. Groves, Stockwell-st.*	153 0 0
W. Mills & Sons	181 0 0		

NEWPORT (Mon.).—For erection of business premises, for Thomas Cordey, Esq., J.P. Messrs. E. Page & Lister, architects, Newport (Mon.) :—

W. Collard & Son	£1,246	R. W. Moon	£1,119
F. H. Saunders	1,223	T. Jerrett	1,100
Phillips, Clarke, & Co.	1,210	J. B. Jenkyn	1,100
Leadbeter & Co.	1,200	Kirby & Westacott	1,100
Shopland	1,197	H. Thomas & Son	1,093
E. Dean	1,177	H. J. Herbert & Co.	1,090
Brownscomb & Son	1,150	F. Leadbeter	1,078
J. H. Williams	1,139	C. H. Reed, Newport (Mon.)*	1,043

ORSETT.—For the erection of concrete walling, etc., enclosing grounds at Orsett Union Workhouse, for the Orsett Board of Guardians. Christopher M. Shiner, A.R.I.B.A., architect and surveyor, 10, Duke-street, Adelphi, W.C. :—

J. Pike & Co.	£514	J. J. Lawrence	£382
H. J. Carter, Ltd.	406	Brown Bros.	365
H. H. Carter	395	G. Brown, Grays*	355

PORTISHEAD.—For partially pulling down buildings at Portishead Dock and erecting a maize flaking mill and store, for Messrs. E. Bailey & Son, Ltd. Mr. P. B. Rigg, architect, Frome :—

Hatherly & Co.	£4,757	Lovell & Sons	£3,897
Hayward & Wooster	4,450	R. Wilkins & Sons	3,864
Broad & Sons	4,400	Walters & Son	3,837
F. Chown	4,380	G. Downs & Son	3,650
E. Love	4,072	A. G. Heard	3,583
Marsh & Stone	4,000	Pittard & Son	3,490
G. A. Hayes & Sons	3,999	T. Weeks, Bedminster*	3,430
A. J. Colborne	3,999	Bray & Slaughter	3,418
Peerless Dennis & Co.	3,984	T. C. Gluyas	3,276

SHARNFORD.—For erecting a brick and concrete bridge, for the Leicestershire County Council. Mr. S. Perkins Pick, engineer, 6, Millstone-lane, Leicester :—

T. Hickman	£986 6 9	P. Rourke	£933 0 0
C. Chamberlain	980 8 0	A. E. Palmer, Glenfield, Leicester*	930 0 0
W. Moss & Sons	966 0 0		
Stimpson & Rolliston	946 0 0		

SHERINGHAM.—For erection of cloakroom, etc., at Beer Approach, for the Sheringham Urban District Council. Mr. F. Hall Smith, Council Surveyor, Sheringham. Quantities by Surveyor :—

A. Chapman	£395 0 0	I. W. Neale	£321 0 0
H. Bullen	396 10 0	Blyth & Sons, Sheringham*	330 0 0
W. G. Porter	376 16 8		
C. A. Sadler	364 6 9		

[Surveyor's estimate, £350.]

STOKE-ON-TRENT.—For the remodelling of Longton Town Hall. J. H. Beckett, A.R.I.B.A., architect, Longton :—

H. Willcock & Co.	£8,550	Tompkinson & Betteley, Longton*	£7,375
Grants	8,000		
T. Godwin	7,879		

WAREHAM.—For erection of boundary walls, etc. Mr. W. W. Pookes, surveyor, Wareham :—

G. Pond	£275 0 0	Horwood Bros.	£218 4 6
J. Lairford	250 0 0	Parsons & Hayter, Wareham*	198 10 0
A. R. Marsh	235 10 0		

[Surveyor's estimate, £200.]

Ham Hill Stone.
Doulting Stone.
Portland Stone.
The Ham Hill and Doulting Stone Co., Limited
(Incorporating the Ham Hill Stone Co. and C. Trask & Son, The Doulting Stone Co.).
Norton, Stoke-under-Ham, Somerset.
London Agent :—Mr. E. A. Williams, 16, Craven-street, Strand.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co.

SPRAGUE & CO.'S, Ltd.,
"INK-PHOTO" PROCESS,
4 & 5, East Harding-street,
Fetter-lane, E.C.

J. J. ETRIDGE, Jr.
SLATE MERCHANTS. LTD.
EXPERTS IN
SLATING, TILING.
BEST WORK ONLY.
Telephone 2685 Wall, or write.

PILKINGTON & CO.
(ESTABLISHED 1838),
DEPTFORD WHARF,
190 & 192, CREEK ROAD, DEPTFORD, S.E.
Telephone No.: New Cross 1102 (two lines).
Registered Trade Mark.
Polonceau Asphalte.
PATENT ASPHALTE AND FELT ROOFING.
ACID-RESISTING ASPHALTE.
WHITE SILICA PAVING.
SEYSSEL ASPHALTE (Direct from the Mines).

"Drop Dry" Glazing
ECONOMICAL, EFFECTIVE. THE PERFECT SELF-SUSTAINING BAR.
Copper & Zinc Roofing.
The most Efficient and Economical System in the Kingdom.
Designs and Estimates Free on Application.
Telegraphic Address: "COURTEOUS, LONDON."
F. BRABY & CO., LTD.
Telephone: North 3032 (4 lines).
Chief Offices: 352-364, EUSTON ROAD, LONDON, N.W.
Works: LONDON, LIVERPOOL, BRISTOL, GLASGOW, FALKIRK.